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EDINBURGH

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MEDICAL JOURNAL.

Vol. 38

VOL. XXXVIII.—PART I.

JULY (TO DECEMBER) 1892. Jne 1893

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EDINBURGH:
OLIVER AND BOYD, TWEEDDALE COURT.
LONDON: SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED.

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THE

EDINBURGH MEDICAL JOURNAL.

Part First.

ORIGINAL COMMUNICATIONS.

I.—"THE BLOOD IS THE LIFE:" BEING THE HARVEIAN ORATION FOR 1892.

By JOHN STRACHAN, M.D., Dollar.

"Only be sure that thou eat not the blood: for the blood is the life; and thou mayest not eat the life with the flesh" (Deut. xii. 23).

IN making this quotation from ancient Scripture, I do not claim for it any greater significance than that of the earliest recorded opinion with regard to the blood, nor higher authority than that of Moses, the writer of the book in which it occurs. It expresses, probably, the accepted views of the learned in ancient Egypt, who are known to have been close observers of, and deep reasoners upon the phenomena of Nature as presented to their view. Compared with modern times, their means of observation and the extent of their knowledge were extremely limited, and the conclusions based upon these are of correspondingly little value in a scientific sense. Still it is interesting and not without significance to note how these old world thinkers, reasoning upon the elementary facts which were before their eyes, arrived at the clear and emphatic opinion expressed in the words of my text, and implied in many of the customs and ceremonies of the ancient Hebrews as recorded in Scripture. We read in Fenimore Cooper's novels of the apparently very insignificant indications—a broken twig here and a crushed leaf there—which enabled the native American pathfinders to arrive at correct conclusions in matters concerning their welfare. So all natural phenomena, if carefully observed and shrewdly interpreted, point to a true and definite end, which may be reached from slight indications if the mental vision carry straight and far enough.

I propose in this paper to glance first at the facts with regard to the blood which were within the knowledge of the ancients, and upon which they founded their conclusion as above; and thereafter to trace the progress of discovery, or, in backwood American phrase, follow up the trail, with a view to ascertain how far this conclusion is borne out by the further indications rendered available by advancing science.

From the earliest times human intelligence must have been struck with the close relation which subsists between the loss of blood and the loss of life. In the wounded in battle or personal combat, and in the animals sacrificed to their gods or slain for food, men would see that, as the blood flowed, life ebbed away, and that the last flicker of life corresponded with the last drop of blood coming from the wound. Where the loss was partial only, they would see that the remaining vitality or strength was in inverse relation to the amount of blood lost, and that recovery of strength corresponded with the returning ruddy hue of the blood as seen in the lips and cheeks. They would see also in the blood itself, when shed, an apparent vitality or capability of spontaneous change of form, its speedy coagulation, and its further separation into clot and serum. Reasoning upon these significant, but, as we must now regard them, very meagre data, they came to regard the blood as the emblem or embodiment of the mysterious Life or Spirit, the presence or absence of which determines the vast difference between the living animal and the mass of carrion passing rapidly to putrefaction and decay. Hence the special reverence paid to the blood by the ancients, their being forbidden to eat of it, and the prominent part they assigned to it at their religious rites and ceremonies.

Of the conditions connecting the blood with the life, further than its mere presence in the body, nothing seems to have been known down to the time of Hippocrates, who, writing 400 B.C., is the first to attempt any description of the heart. He describes it as consisting of two ventricles separated by a partition "the fountain of life," and two auricles, receptacles of air. The lungs he describes as consisting of five ash-coloured lobes, the substance of which is cellular and spongy, naturally dry, but refreshed by the air. He seems to have had no conception of the action of the heart in propelling the blood, or of the function of the lungs. A recluse named Polybus, a disciple of Hippocrates, writing a quarter of a century later, represents the blood as proceeding by four pairs of large vessels from the brain to the extremities and other parts and organs of the body; and this may be taken as a fair sample of the views held by the most enlightened men at that time.

It was about the middle of the third century B.C. that Aristotle, from much personal observation and probably dissection of the lower animals, corrected many of the erroneous and fanciful views previously held, and represented the blood as proceeding from the heart, which he describes as full of blood, and the source and fountain of that fluid. He speaks of the blood as flowing from the heart to the veins and thence to every part of the body.

A few years later, Praxagorus distinguished the arteries from the veins, and described the former as conveying air from the lungs, and the latter as carrying the blood from the heart.

The physicians of the Alexandrian school, chiefly Erasistratus and Herophilus, under the patronage and protection of the Ptolemies in the latter part of the second century B.C., made considerable progress in anatomical knowledge of the heart. They were the first who dissected the human body, and they thus acquired a fairly accurate knowledge of the valves of the heart, which they describe. They also recognised the nature of the pulmonary artery, which is spoken of as the arterious vein, thus leading the way to knowledge of the pulmonary circulation, of which, however, they showed no suspicion.

After this several centuries elapsed without any further advance being made towards a knowledge of the circulation; and Cicero, forty years before the commencement of the Christian era, still speaks, in his treatise, *De Naturâ Deorum*, of the arteries as conveying air from the lungs, and of the veins only as bloodvessels. This view, indeed, held good up to the time of Claudius Galenus, the celebrated physician of Pergamus, who was born about A.D. 130. Galen was the first to discover that the arteries, in the living animal, contain not air but blood, and by vivisection experiments he ascertained the position and demonstrated the action of the heart.

From the time of Galen more than a thousand years elapsed without anything of importance being added to our knowledge regarding the blood, and the most erroneous views continued to be held regarding its origin and distribution.

About the year A.D. 1315, Mondino,—known as the father of modern Anatomy,—who was then teaching at Bologna, described the cavities and valves of the heart with wonderful accuracy. His description, indeed, is credited with containing the rudiments of the circulation of the blood. He still, however, clung to the old idea, that the left ventricle ought to contain spirit or air which it generates from the blood; and he believed that the blood proceeds from the heart to the lungs through the vena arteriosa, and that the aorta conveys the spirit into the blood through all parts of the body.

For other two hundred years anatomical knowledge regarding the heart and the circulation remained at a standstill, but there is interesting evidence of the state of medical opinion with regard to the blood during that period. "According to Sismondi," as quoted by Dr Tanner, "physicians in 1482 were persuaded that the blood was the seat of life; so that they believed that if the vital fluid of a child could be put into the veins of an old man, the latter would be rendered young again. On this principle, the charlatan Cottier made Louis XI. bathe in children's blood, while it is stated that he even caused the king to drink of it. Sismondi at the same time remarks that several children were the victims of an attempt to pass their blood into the veins of Innocent the Eighth. Villari also, speaking of the state of profound exhaustion and somnolency into which Innocent the Eighth had fallen, notices that a Jew doctor proposed to restore the exhausted vitality by the transfusion of the blood of a young person—'an experiment that hitherto had only been made on animals.' Accordingly, the blood of the decrepid old pontiff was passed into the veins of a youth whose blood was transferred into those of the old man. The experiment was tried three times, at the cost of the lives of three boys, probably from air getting into their veins, but without any effect to save that of the Pope. He expired on the 25th April 1492," within a few days of four hundred years from this date.

It is not till the year A.D. 1531 that we have any further record of a distinct advance in anatomical knowledge of the circulation. In that year Michael Servet or Servetus, a Spaniard, who some twenty years later shared the fate of so many independent thinkers of those days, being burned at the stake, published a treatise, *De Trinitratus Erroribus*, in which he maintained the imperviousness of the septum between the ventricles, and held that the blood passes by what he calls "an unknown route," from the right ventricle by the vena arteriosa to the lungs, and thence into the arteria venosa and left auricle and ventricle, from which it is conveyed by the aorta to all parts of the body.

This unknown route was finally discovered a few years later by Columbus, a pupil of Eustachius, who succeeded in tracing the blood from the right to the left side of the heart, showing its passage through the lungs. Columbus may thus be held to be the discoverer of the minor or pulmonary circulation of the blood, which has such an important bearing upon the connexion between the blood and the life. The immediate bearing of air in the lungs upon life was recognised from the earliest times, as when the animals "went in unto Moses into the ark two and two of all flesh, wherein is the *breath of life*." But now its intimate association with the blood, thus bringing the two instant essentials of life, as it were, into one, began to be understood by the mediæval philosophers. Their ideas on the subject were indeed rather crude. Thus Columbus held that "the pulmonary vein contains blood mixed with air brought from the lungs to the left ventricle to be distributed to the body at large." But even as thus stated, the fact is an important indication upon the trail which we are endeavouring to follow up.

Towards the end of the sixteenth century, the first inkling of the larger circulation was obtained by Andrew Cesalpinus of Arezzo, observing the swelling of veins on the distal side of ligatures; and the discovery by Fabricius, in A.D. 1574, of valves in all the veins of the lower extremities.

It was, however, reserved for our countryman, whose name and fame we are met this evening to commemorate, to make the grand discovery with which his name has ever since been associated.

About the year 1600, William Harvey, who was then studying at Padua under Fabricius, commenced a series of experiments which resulted in the discovery of the larger or systemic circulation, and in clearly demonstrating the complete double circuit of the blood. This memorable truth was first announced in the year A.D. 1619, and after a good deal of acrimonious and envious controversy, was finally adopted by contemporary anatomists as the true explanation of the movement of the blood in the body.

Thus were finally solved many problems which had long puzzled anatomists and physiologists, and the way was cleared to a thorough study of the nature and functions of the blood. Then was seen the true significance of the heart's pulsations, and life was found to depend, not only upon the presence of the requisite amount of blood in the body, but also upon the continuous motion of the blood through the lungs and through the entire organism. Then might be understood how the "spirit" derived from the air permeates to every part of the frame, giving vitality to the tissues, and how the blood, thus exhausted, is continuously replenished on its passage through the lungs. Thus was some light thrown upon the instant cessation of life upon stoppage of the heart's action, and the scarcely less rapid extinction of it when the supply of pure air is shut off from the blood. We may well understand what a stimulus was thus applied to the study of the blood, and how one discovery after another rapidly followed.

"On the 23rd July A.D. 1622, Gaspar Azelius, Professor of Anatomy at Pavia, while engaged in demonstrating the recurrent nerves in a living dog, observed numerous white delicate filaments crossing the mesentery in all directions. At first he took them for nerves, but seeing an opaque white fluid exude from the cut ends, and afterwards discovering that they were tubular and plentifully supplied with valves, and tracing them to their origin in the villous membrane of the intestine, he came to the conclusion that they were true chyliferous vessels." This discovery of the lacteals, amplified and perfected during the next twenty years by John Westling, Highmore, Wirsung, and Pecquet, showed the connexion between the alimentary and the vascular systems, and proved the nutrient quality and property of the blood. Thus the food supply, which may be said to be the one other direct requisite of life, was found to be but a process in the formation of blood, the pabulum, of which it consists, constituting in the form of plasma the greater part of that fluid. Thus another step was taken in tracing the connexion between the blood and the life, and still the ancient dictum appears to hold good.

With regard to the food constituents of the blood, I would here refer to the paramount importance of the hydrocarbons or fats in the immediate maintenance of life. Fat, as I need scarcely remind you, consists of a maximum of C and H, with a minimum O ($C10\,H9\,O$), and has thus a high capacity for oxidation. It is a special product of the animal organism, partly contained in the blood plasma and partly stored as adipose tissue, in such a way as to be readily available for absorption into the blood if required. Now, life can be maintained for long periods upon nothing more than this fat, along with oxygen from the air. In illustration of this fact, I need only refer to the familiar example of hibernating animals which are very fat when they retire for their winter's sleep, and very thin when they wake up in the spring; and to the celebrated fat pig, of which an account is given by Dr Mantell (the geologist) in the Transactions of the Linnean Society. This pig was, on 14th December 1810, buried in its stye under a fall of chalk from the cliff above, without food, and only such water as may have trickled down the sides of the cave which formed its stye. After 160 days it was taken out, in presence of Dr Mantell, alive. It was estimated to have weighed about 160 lbs. when first buried, and it weighed only 40 lbs. when taken out. It had lived all that time upon its accumulated fat.

About the beginning of the seventeenth century the use of the simple microscope opened up a new field of investigation and discovery, and led to a greatly extended knowledge regarding the minute anatomy of the tissues. About this time the Dutch philosopher Lieuwenhoeck, in the course of his researches, saw for the first time that the blood, instead of being, as was supposed, a homogeneous fluid, consisted of a vast number of cell-like bodies floating in the fluid plasma derived from the food. On watching these, the red corpuscles, he must have been struck by the appearance of vitality or spontaneous movement they presented—their moving towards each other, and arranging themselves side by side into rouleaux.

Following up this important discovery, Malpighi was enabled to trace the transition of the arteries into the veins, both in the pulmonary and in the systemic circulation, to show the connexion between the capillary bloodvessels and the terminal bronchi and air vesicles in the lungs, and to observe the movement of the corpuscles in the capillaries.

Thus may be said to have been completed, in a general way, our knowledge of the circulation and of the composition of the blood, and in following up the trail upon which we were started by the ancient Scriptural writers, with a bold forecast of the ultimate truth, we have found the indications, as discovered, lead us on in the line of that forecast, and narrow down the issue more and more toward the point to which their minds were projected—the identity between the blood and the life. The three prime essentials of life—

the blood, the breath, and the food—are found to be all united in the blood, and this fluid we now find to possess a form of organisation, if we may call it so, in the immense number of organic corpuscles which crowd the plasma. The discovery of the capillaries by Malpighi showed the manner in which the blood is sent to every point in the organism, to which it undoubtedly conveys, in some way, the elements of vitality.

Without attempting to trace further in chronological fashion the progress of investigation and discovery with regard to the blood which has followed a greatly improved microscope and marvellous advance of chemistry, we may now proceed to examine, more particularly, as to how far the ancient dictum may be reconciled with the facts as revealed by the methods of modern science.

There is no need to argue the question of the blood, while circulating in the vessels, being a living fluid. This was insisted upon by Harvey, was experimentally proved by John Hunter in his work on Animal Economy, and by Dr Corry of this city, towards the end of the last century, and it is spoken of as an established fact by Professor Foster of Cambridge in his recent work on Physiology. The questions to which I now invite your attention are—1st, In what does the vitality of the blood consist? and, 2nd, How far does it deserve the title of the life?

When and how does the dead plasma derived from the food acquire life? In its passage through the alimentary system the food is broken down and emulsified by physical and chemical agency; but when taken up by the lacteals it is simply a fatty and albuminous compound containing certain salts, but presenting no evidence of vitality. After passing through the mesenteric glands, however, a marked change is found to have taken place. There is great diminution of the fatty globules, an increase of the albumen, and the presence, for the first time, of fibrin, the coagulation of which is held to indicate vitality. But, so far as stated, there is nothing in the composition of the chyle which would seem capable of generating life, as it is difficult to believe that a substance dissolved in, amalgamated with, and apparently elaborated from the rest of the plasma, can possess that property. But, besides what I have mentioned, there are, in the efferent lacteals, numerous chyle or lymph corpuscles, imperfectly developed, but still possessing the form and property of the cell, being therefore capable of carrying on vital action, *i.e.*, absorbing C and O, bringing these into chemical combination and exhaling the product as CO2, which is always a condition of animal life. Let us compare the chyle as so constituted with the contents of a bird's egg. The great bulk of this is, like the plasma of the chyle, a simple structureless mass of albumen and fat, quite devoid, apparently, of the physiological elements of vitality. Yet, as proved by the observation and experiments of John Hunter, they are so far possessed of the vital principle as to resist influences, as extreme heat and cold, which tend to their destruction, and to remain fresh under circumstances in which, if dead, they would certainly putrefy. The only part partaking of the nature of cell organisation, and thus capable of generating life, is within the germinal vesicle, which occupies but a very small space within the egg. The vital force generated there must be projected to the general mass of yolk and white. May not the vitality of the efferent chyle be accounted for in a similar way by the presence within it of life generating cells, the vitalizing effect of which keeps the fibrin in a fluid state. If we accept this principle, it will, I believe, throw much light upon the connexion which may subsist between the blood and the life. By the time the chyle reaches the thoracic duct it is joined by the lymph, free fat has all but disappeared, being apparently incorporated in the albumen and fibrin, the latter of which is considerably increased in quantity, while the corpuscles are more numerous and fully developed. The chyle is thus assimilated to the plasma of the blood, into which it is then poured. The lymph corpuscles become the white corpuscles of the blood, and may be supposed to continue their function of communicating life to the plasma.

Thus may be accounted for the vitality of the blood plasma, which must have an important bearing upon its functions in nutrition, repair, etc. But although the blood may thus be said to be alive, it requires more than this to entitle it to be called the life of the body. We *have* more than this, however, in the blood. We have yet to consider the red corpuscles, which bulk so largely in the blood-stream. Like the plasma, the white corpuscles are formed outside the circulation, and like it also, they may pass out of it again through the walls of the capillaries, being possibly utilized to replace used up cells in the various tissues. The red corpuscles, on the other hand, are formed in, and while intact never leave the blood-stream. They seem to have little or nothing to do with nutrition, which may be fully carried on when their number is greatly depleted. But their relative number and their condition have a very direct bearing upon the strength or vitality of the system. These facts were clearly, if sadly, demonstrated in a case which lately came under my observation, where life gradually ebbed away from constantly recurring hæmorrhages from the mouth and nose, which had been going on for years. Food was well taken throughout, and, accordingly, the *quantity* at each bleeding was equally abundant up to the last, while the body after death had the weight and appearance of a well-nourished person. But as the hæmorrhages went on the blood shed became more and more thin and pale, the skin became deathly white, and the debility increased till, toward the end, the patient could not raise herself to the sitting posture without fainting. Here it was evident that the permanent and progressive loss sustained by the blood was that of red corpuscles, the reproduction of which is slow, and could not keep pace with the repeated drain upon their numbers. Coincident with this loss was the steady diminution of vital force, which flickered and went out when the number of red corpuscles became too few to support it.

We may then conclude that the special function of the red corpuscle is, either directly to minister to or actually to supply the vital force of the body. The former alternatively is, of course, in accordance with the generally accepted theory, that the red corpuscle, by virtue of its hæmoglobin, acts simply as the carrier of oxygen to the tissues where oxidation takes place, keeping up heat and life. But I venture to suggest the possibility of the other alternative, which would be an entire corroboration of the views held by the ancient writers.

Let me here endeavour to explain what I mean by the generation of life, such as I suppose may be the special function of the red corpuscle.

In a general sense animal vitality is an inherent principle of protoplasm, derived directly from the parent cell, and not to be otherwise imparted. But connected with it are certain functional activities without which life cannot be maintained. These are—1st, *Nutrition*, by which an organism absorbs from environment and assimilates material needed for growth and restoration of substance; and, 2nd, Oxidation of carbon and hydrogen as in combustion, with the evolution of heat and vital force, akin to, if not identical with, galvanic force, which, as shown by Faraday, is always generated by chemical action. While the health and vigour of an organism are kept up by the former activity, it is upon the latter that life more immediately depends. For the purpose of this oxidation, the blood is kept supplied with the specially prepared hydrocarbons—a store of which is laid up in the body to provide against any temporary failure in this respect of the ingesta—and oxygen is brought in a continuous stream, loosely combined with hæmoglobin, from the lungs and heart. The cessation of life upon stoppage of this stream is comparable only to the sudden darkness coincident with switching off the current from an electric lighting apparatus; while that which follows upon shutting off the supply of oxygen from the lungs may be compared with turning off the gas at the meter, life lasting only till the oxygen, already in the blood, is exhausted; whereas, given a due supply of oxygen, life, as we have seen, may continue till all the fat in the body is used up. Without occupying your time with a more elaborate argument, I shall assume that we are justified in identifying life with the force, of whatever nature, generated by the chemical action continually going on between the hydrocarbons on the one hand and the oxyhæmoglobin on the other.

Nutrition must, of course, take place *within* each cell and fibre individually, but oxidation may, I fancy, be performed vicariously by the red corpuscles, and the vital force there generated be imparted first to the blood plasma, and through that to the tissues. This, it seems to me, would be in accordance with the general law of specialisation of function, tending to concentration of cell activity upon its own proper work. Thus we may imagine the cell, whose special function it is to secrete bile, being so differentiated to this purpose as to be incapacitated for, at the same time, absorbing carbon and oxygen and carrying on the chemical process as above; and, on the other hand, it does not seem inconceivable that certain cells may be set apart for and specially adapted to this dynamical work, and thus leave to the others perfect freedom of modification to suit their separate functions.

It may be objected to the idea of the red corpuscles providing the life supply of the tissues that they are not in themselves, according to the definition of Max Schultz, complete cells, being devoid of nuclei. But the recent observations of Haeckel have proved that, to quote from Sir William Turner, "the vital phenomena can be displayed by individual clumps of protoplasm without the presence of a nucleus!" Again, according to Goodsir, the nucleus is chiefly concerned in reproduction, initiating the process of fission by which nucleated cells are multiplied. If then, as we may suppose, the one function of the red corpuscle is to generate *life*, there may be no need of a nucleus, and the cytode may even possess this property in a concentrated form. When we trace the life history of the red corpuscle this view seems to be somewhat borne out.

In the lower vertebrata the red corpuscle *is* nucleated, and is, therefore, a complete and living cell. This is the case also in the early embryo state of the mammal. In the latter, however, as development proceeds, the nucleated red corpuscles gradually disappear from the circulation, giving place to the simple biconcave red disk. Is this change—from the lower to the higher type of animal, and from the lower to the higher stage of the same animal—one of degradation for the red corpuscle? Does it, from being a complete and living cell, sink to a mere inert carrier of oxygen? Is it not in accordance with the general law of evolution to suppose the change rather one of differentiation of form and concentration of function, as is the case with the tissues?

In adult mammalian blood there exist, as shown by recent observation, nucleated coloured corpuscles of larger size than the common red disk, but of identical composition. They are found only in the red marrow of the bones, which was first indicated by Neuman as a probable nidus for the growth of blood cells. There these nucleated red corpuscles have been observed to multiply by fission, producing similar cells with the same power of reproduction, and which remain within "the intricate labyrinth of relatively wide passages with very thin walls formed by the capillaries and minute veins of the marrow" (Foster). But they are seen to propagate also by budding, the buds breaking off before they reach the full size and without attaining to the dignity of a nucleus, and entering the blood-stream as ordinary red corpuscles. In the words of Prof. Foster, "Whatever their primal origin, these coloured nucleated cells arise, during post-embryonic life, by division of previous coloured cells, continually undergoing division, and thus giving rise to cells, some of which become red corpuscles and pass into the blood, while others remain in the marrow and undergo further division, and thus keep up the supply. Such repeatedly dividing cells may fitly be called hæmatoblasts." A somewhat analogous arrangement is to be seen in the economy of the bee-hive. There we have the fully developed bees (drone and queen), large of size but weak of flight, which remain for the most part in the hive and devote themselves to propagation; and we have the worker bee, a female, but arrested in development short of the reproductive power, and its strength concentrated upon the special function for which it is intended, and to which it applies itself with a vigour and staying power far beyond the strength of the complete insect. May it not be that in the red corpuscle development, like that of the worker bee, is kept short of the reproductive power, and thus concentrated upon the special purpose intended to be served? And may not that purpose be, besides maintaining its own vitality, to generate the life supply of the tissue cell, thus leaving it free for the performance of its own special function?

The red corpuscle is, no doubt, a carrier of oxygen, its hæmoglobin taking up that gas in the lungs and giving it off in passing through the circulation. But the question is, where and how is the oxygen utilised? Is it simply carried to the capillaries and there given off to the tissues? Or may it not be applied to oxidation within the stroma of the corpuscle, thus keeping up a double chemical action—reduction of the oxyhæmoglobin and oxidation of the carbon and hydrogen—with corresponding evolution of vital force? In the dytiscus marginalis and other air-breathing insects which pass much of their time below water, there is a beautiful arrangement by which they are enabled to carry with them a quantity of air to serve for respiration during immersion. May not the hæmoglobin be an analogous arrangement, by which the red corpuscle is enabled to carry sufficient oxygen to maintain the vital process during the long journey through the circulation, the hydrocarbon being absorbed from the plasma *en route?* In support of this view I would point to the very considerable proportion of carbonic acid found in arterial blood. If oxidation take place only in the tissues or in the capillaries, and the carbonic acid so produced be thrown off by expiration, how does that gas find its way into the arteries? But if oxidation be within the corpuscle it will be most active in arterial blood with the evolution of carbonic acid and vital force. The latter we may suppose to accumulate in the plasma during its passage through the arteries, and to be discharged to the tissues from the capillaries. Dr Shettle of Shaftesbury, some thirty years ago, conducted a series of experiments—published in the *Lancet* in August 1863—which proved that arterial blood is very considerably charged with positive electricity, while venous blood is only slightly so, if at all; and also that "the abstraction of electricity from the blood causes it to lose its arterial character" and become dark venous blood. This entirely corresponds with the view here suggested, supposing that electricity and vital force are one and the same thing.

Professor Foster lays stress upon the small proportion of stroma in the red corpuscle as compared with the hæmoglobin, and argues from this that vitality must be very limited, and any effect upon the blood plasma trifling. But according to the view which I here venture to suggest, the proportion of hæmoglobin will be determined by the amount of oxygen required for the journey; and although the vitality evolved by each corpuscle may be trifling, the aggregate of some five millions to every millimetre of blood must be considerable. The double chemical action to which I have referred may have the effect of producing a vitality out of proportion to mere bulk of stroma.

If such, then, be held to be the function of the red corpuscle, may it not be allowable to claim for it the honourable title of Life Cell, and for the blood the old Mosaic term of "The Life?"

II.—HYPEROSTOSIS CORRESPONDING TO THE DISTRIBUTION OF THE NERVUS TRIGEMINUS.

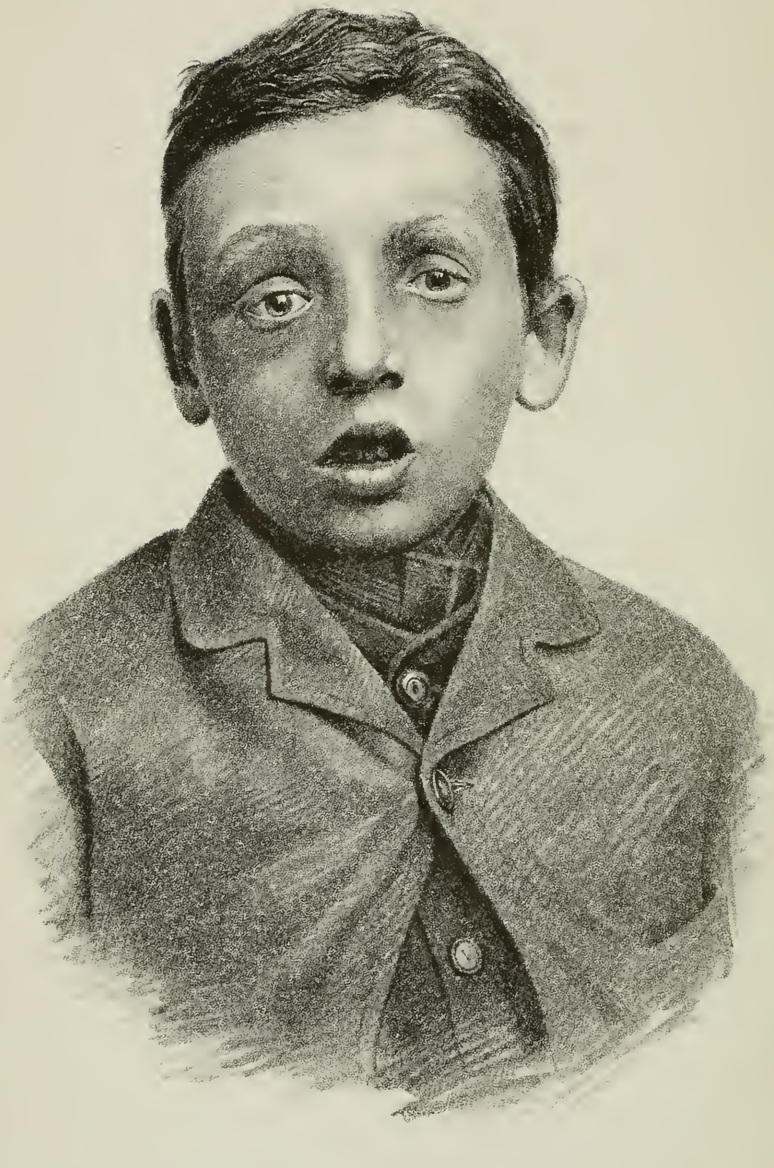
By David M. Greig, M.B., F.R.C.S. Ed., Assistant Surgeon, Dundee Royal Infirmary.

(*Read and demonstrated before the Forfarshire Medical Association, 25th March* 1892.)

W. D., æt. 15 years 4 months, mill-worker, first came under my notice a little more than two years ago. He had no complaints, and was not brought to me as a patient; but having seen him by chance, and being struck with the very obvious deformity which he presented, I introduced myself to his parents, and since then have had him under constant observation and repeated examination.

His *family history* is unimportant. He is the eldest child of healthy English parents. One sister, æt. 7 years, has right infantile paralysis. The remaining three children are healthy.

His *personal history* is also unimportant. He has had the usual diseases of childhood and the usual accidents inseparable from that period of existence. In evidence of the latter, a cicatrix is



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seen on the right side of his nose, resulting, his mother states, from a fall sustained when he was "quite a child." When he was five years old he fell and bruised his forehead on the right side. This, I think, can have no bearing on his present condition, but it is from this that his mother dates the commencement of his deformity, though a period of four years elapsed before any appearance of peculiarity was noticed.

As regards his *present illness*, his mother states that in 1886 she noticed a difference in size of the two sides of the head, there being a bulging of the right side at the upper and outer part of the forehead. There seem never to have been any subjective symptoms further than that he used occasionally to complain of headaches. The swelling has slowly and progressively increased, but so slowly of late that it is doubtful if it is still increasing. Since he came under my notice two years ago he has undergone normal increase in stature, and to all appearance the swelling has grown *pari passu* with the general body-growth, so that there has been no diminution in prominence of the swelling, and the disproportion between the two sides has remained the same.

Present Condition.—He is a well-nourished and not unhealthy-looking lad, though he appears to be of a somewhat neurotic type. His head presents a very striking asymmetry. The various organs not associated with this abnormality are healthy, and their functions well performed. Respiration is carried on chiefly through the mouth, and his upper lip on the right side has slightly lost its natural curve. A most obvious abnormality is produced by the presence of a swelling at the upper and outer side of the right orbit, with displacement of the right eyeball. The zygoma is normal. The palate, which tends to the neurotic type of palate, is normal, and there is no pharyngeal growth. The right nasal fossa is normal, and its patency is unimpaired. The right eye is displaced forwards and downwards, and possibly very slightly inwards. Its visual acuteness is 5/5 of the normal, and exactly the same as that of the left eye. There is no diplopia, the pupil reacts normally to light, and the intra-ocular tension is not increased. On examining the fundus the optic disc is seen to be very ill defined and hyperæmic, and the physiological cupping distinct. The vessels have perhaps a slight tendency to be tortuous. The whole condition suggests commencing optic neuritis; but this can hardly be, as there has been no change in the appearances during the last two years, and exactly similar appearances are found in the unaffected (left) eye. The right eye is half an inch lower than the left, its axis is normal, and the palpebral fissure is not increased. The movements of the eye are normal. The right external auditory meatus is slit-like on account of the anterior wall of the cartilaginous portion of the canal being pushed backwards. The membrana tympani is dull and collapsed. The acuteness of hearing is 1/3 of the normal on this side, but can be slightly improved by drawing the pinna upwards and backwards. The conduction of sound through the bones of the vault and face is normal, and shows that there is no affection of the right auditory nerve. I have already mentioned that the chief swelling is above and to the outer side of the orbit. The infra-orbital margin is also advanced. On the outer side of the head, veins coursing over the swollen parts are abnormally large and distinct. The vertical plate of the frontal bone on the right side is enlarged and prominent as far back as half way to the coronal suture. Towards the left this enlargement extends somewhat across the middle line. The natural recession under the superior orbital arch is diminished on the right side, but otherwise no abnormality in the horizontal plate can be detected. The temporal ridge can be felt to be normal. The external angular process is increased in size. The temporal fossa presents an unnatural fulness, and is convex. The frontal process of the malar is enlarged, and presents a surface looking directly forwards. This surface measures one inch on the right, and corresponds to a mere border on the left side. From the inner canthus of the right eye to the right external auditory meatus measures 5 inches, while corresponding measurement on the left side is 4⅜ inches. From the glabella to the external occipital protuberance on the right side measures 11½ inches, and on the left 10½ inches.

Remarks.—Here we have to deal with an abnormal condition, limited below by the zygoma and inferior margin of the orbit, behind by a line drawn vertically through the right external auditory meatus, and in front by the mesial line. This abnormal condition is evidently due to a neoplastic formation affecting especially the frontal bone. The neoplasm is certainly not a naso-orbital or naso-pharyngeal tumour, nor a tumour of the maxillary sinus, because it does not encroach on the nasal or buccal cavities, nor can it be felt or seen in the pharynx. From the symptoms and history we may conclude that it is not an abscess or other inflammatory production, nor can it be of a sarcomatous nature. It is very improbable that it can be a mucocele of the frontal sinus or of cystic origin, because of its slow growth, hardness, and absence of any tendency to point where the bone is thinnest, namely, below the inner extremity of the eyebrow. I think, too, we may put fibrous tumour out of the question,—first, on account of its extreme rarity in this situation; secondly, on account of the age of the patient; and, thirdly, on account of the slowness of this tumour's growth, its hardness, and other symptoms besides. We are thus reduced to possibility of this neoplastic formation being of the nature of—1st, enchondroma; 2nd, osteoma; and, 3rd, hyperostosis.

Enchondromata are common in children about the age of puberty according to Holmes,[1] and they tend to infiltrate the bones they affect. It would not be surprising to find an enchondroma in connexion with the frontal sinus, for the frontal bone is laid down in cartilage, and the sinuses begin to appear about the seventh year,[2] and it was soon after this age when the first symptoms of deformity were noticed in this case. It would not be unnatural, I think, to suppose that, had the embryonic elements necessary to the formation of a tumour existed in the frontal bone, these elements might in some way be affected by the changes taking place in the bone consequent on the formation of the sinuses, and so their growth into a tumour begun, and of course a slowly growing tumour would in such a position take some time to reach the surface, and would not be apparent as a deformity perhaps for a year or two. Still I cannot consider this to be an enchondroma, because enchondromata are generally of more rapid growth than this has been. They infiltrate the bones they affect, and give rise to a resiliency on palpation which this case does not present. But chiefly I would abandon the idea of this being an enchondroma on account of the participation of the malar bone in the enlargement.

The extremely slow growth of the disease would rather favour the idea of its being osteomatous in character. That osteomata are found springing from the frontal sinuses we know. They arise from the diplöe, and are either cancellous or of ivory consistency. They are not uncommon in the human subject, and have been met with in the lower animals. Thus Bland Sutton[3] has recorded the existence of an ivory exostosis weighing 16 lbs. in a cow, the growth having evidently originated in the frontal sinus. Were the case I have described one of exostosis, it must have originated in the frontal sinus, and have then extended inwards, filling up the sinus, and thereafter forced its way outwards into the temporal fossa behind the external angular process of the frontal bone, and as the bones were not fully formed the frontal process of the malar bone must have been pushed forwards, and either stimulated into increased growth by pressure or incorporated in the tumour. The area of the temporal fossa would thus be diminished and the soft structures pushed backwards, and with them the anterior wall of the cartilaginous portion of the auditory canal would be displaced. But as this does not sufficiently explain the diminished acuteness of hearing, we must suppose that the eustachian tube also has been more or less occluded by pressure.

Here, then, we have an explanation—a somewhat laboured one, I am afraid—of almost every point presented by the case, and I think we must admit this to be a possible explanation of the condition here found. But, on the other hand, it is not likely that an osteoma would affect the frontal bone so far backwards towards the coronal suture, nor is it likely that the thin orbital plate of the frontal bone would escape displacement so much as it has evidently done. It is also difficult to comprehend why the osteoma should have made its way into the temporal fossa, and it is impossible thus to account for the increased prominence of the orbital margin of the superior maxilla.

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[1] *System of Surgery*, T. Holmes.

[2] *Quain's Anatomy*, 10th edition, vol. ii., part i.

[3] *Introduction to General Pathology*, J. B. Sutton.

The last theory I have to put forward in explanation of the condition which this case presents is the one to which I most incline, and which seems to me to yield a satisfactory explanation of every detail. It is, that we have here to deal with a hyperostosis of the bones developed in connexion with the distribution of the trifacial nerve. A skull presenting this condition has been described by Alexis Thomson,[1] and he refers to a similar skull described by Jonathan Hutchinson.[2] The latter infers that the trifacial nerve contains trophic fibres to the bones, and that the hyperostosis is due to an increased activity of these fibres. In a case reported by Schieck[3] the hyperostosis was limited to the area of distribution of the superior maxillary division of the trifacial nerve, and was accompanied by an hypertrophy of the soft parts.

In the above case the distribution of the supra-orbital and supratrochlear nerves would account fully for the hyperostosis of the frontal bone. The affection of the infra-orbital nerve would explain the fulness of the inferior margin of the orbit, and the implication of the temporal and malar branches would account for the shallowness of the temporal fossa and the hyperostosis of the malar bone. The inferior maxillary division of the nerve has apparently not as yet been affected, unless we consider that the diminution in patency of the external auditory meatus is due to enlargement of the temporo-maxillary articulation caused by the affection of the branches of the nerve to that joint.

III.—ON THROMBOSIS OF THE PULMONARY ARTERIES.

By Henry M. Church, M.D., B.Sc., F.R.C.P.E.

(*Read before the Edinburgh Obstetrical Society, 13th April* 1892.)

During the twenty years I have been in practice I have attended about 700 cases of midwifery. This is perhaps not a large number, but it is a large enough proportion to the other work and anxieties of one in general practice. Out of this number I have lost eight cases: five from puerperal septicæmia in the earlier years of my practice, induced in every case, I believe, by defective sanitary conditions, two others making a narrow escape by frequent and thorough irrigation of the uterus with antiseptics; one case died from exhaustion, the result of excessive hæmorrhage of placenta prævia; one from typhoid fever; and one, the last, from pulmonary thrombosis, which occurred only a few months ago, and which I think right to bring before your notice to-night. Not that there is much to be learned from the case, nor in its record anything likely to enable us to foresee or prevent such an occurrence. If a suggestion as to treatment when the accident has happened can be made, that is all that I can hope for. But the dreadful nature of such a case, and the possibility of any accoucheur being without warning suddenly brought face to face with it, justify a short consideration of the subject, and thereby perhaps lessen the shock when a case does occur in practice, by familiarising our minds with its phenomena and treatment, as far as treatment is possible. But may each one of us here pass twenty years in practice before meeting with a case!

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[1] *Edinburgh Medical Journal*, 7th January 1891.

[2] *Archives of Surgery*, J. Hutchinson, vol. ii. page 312.

[3] *Berliner Klinische Wochenschrift*, 5th Nov. 1883.

During the absence of a medical friend while away on his holiday last autumn, I was called to attend a patient of his, a lady of a rheumatic constitution, aged 36, in her sixth confinement, about the full time. I went at once when called, and found her pretty far advanced in the second stage of labour, walking about her bedroom, with her pains coming on regularly, borne quietly and bravely. Her general *morale* was good. Indeed, everything seemed most satisfactory, and everybody in the house, including her husband, who was a medical man himself, felt quite easy about her. In a few moments, however, we were plunged into extreme fear and concern for her. I had been asked to retire while the patient got up. Just as she got into bed again a cough was heard, and I was hastily summoned. At first glance I thought my patient was in the first stage of a fit of epilepsy or eclampsia: the face was deeply cyanotic, there were tumultuous movements of the muscles of the face and chest, and froth issued from the sides of the mouth. She was lying on her left side, with her face, now getting dark livid, turned towards the pillow, eyes protruding, and the white froth rapidly increasing in quantity and welling from the edges of her mouth. I can liken it to nothing so much as froth oozing from a brisk bottle of beer. This froth soon became tinged with blood. She at one moment pressed her closed hands against the mattress, at another clutched at her breast as if to withdraw an intolerable pressure. She attempted to cry "Oh, dear!" and looked for help. Indeed, it is almost impossible to describe her condition, so sudden, horrible, and appalling was the asphyxia. Recognising what had happened in the pulmonary artery or in one of its branches to the lungs, and fearing immediate death, I sent for further assistance, and in a little had the kind aid of Dr Barbour. When the immediate danger to the life of the patient from the first shock of the pulmonary impaction had passed, the labour pains returned, and after three or four apparently strong ones the child was expelled, the placenta and membranes soon following, and the empty uterus contracting well.

Hoping against hope that the completion of delivery might bring relief, I adopted little treatment. Indeed, what could be done? The case was new to me, and from what I can learn from the literature of the subject, rare, having been unable to find even one case on record where thrombosis or embolism of the pulmonary arteries—by that I mean sudden and dangerous obstruction or plugging of them—came on *before* the birth of the child. The child was alive and has done well. The mother after a terrible struggle, marked by remissions and exacerbations, which continued for three days, died. As regards the uterine conditions, everything was normal during this period of survival. Immediately after the birth of the child, and when the symptoms, instead of being relieved, threatened to assume the intensity of their primary onset, I applied dry-cupping glasses freely to the chest and sides, and also large poultices, which seemed to diminish the clutching for breath. Air entered the lungs freely, but the features continued cyanotic; the heart sounds could not be heard on account of the noisy and rapid breathing, and the heart was felt to be quick and tumultuous in its endeavour to force the blood past the obstruction in the pulmonary artery to the lungs for aëration. The lungs were not at fault, nor was the heart; but there was a sudden and almost complete damming up of the stream of life between the two. Had it been complete, the patient must have died of asphyxia at once. Dr Barbour and I remained for some hours, aiding as best we could. Stimulants—whisky, brandy, and ammonia—were freely given, and also frequent hypodermic injections of sulphuric ether, which enabled the heart to rally. We left her somewhat relieved. About three hours afterwards, in the early morning, I was again summoned, with the message that she was dying. A slight movement had increased the demand for oxygen, which could not be supplied. If one could only have got the blood to the oxygen, or oxygen in some concentrated form to a stream, even a small stream, of the blood, what a relief to the patient! As it was, the heart in its increased endeavour had become exhausted, and had a feeble and fluttering beat; but with a greater degree of rest, and copious use of stimulants as before, it regained more regularity. I remained at her bedside most of the night, watching the effects of the stimulants, and endeavouring to get the *fresh air* to her as much as possible. As long as rest and stimulants were alike enforced, the patient seemed better. Manifestly, therefore, a certain quantity of blood, passing between the obstruction and the walls of the vessel, reached one or both lungs. Whenever the heart was not spurred on by the stimulants, or whenever the slightest movement necessitated more oxidation, the balance was destroyed, and death from asphyxia threatened. And nothing added more to the terror of the scene than the complete consciousness of the patient, during most of the time, that death was imminent, and who always hailed my entrance with the cry, "Oh, can nothing be done to save me?" Thus she continued for three days till the pulse became thready and imperceptible, the respirations more and more hurried and short, and the exhausted heart could battle on no longer. Shortly before her death she fell into a state of coma, and no doubt the cardiac failure was also due to the fact that as little aërated blood could reach the left side of the heart, the medulla oblongata and brain were insufficiently nourished for the innervation of heart and lungs. Besides this, the heart walls themselves had become enfeebled by their own anæmia.

There was no post-mortem examination, which I much regret. The painful certainty of the cause of death seemed not to call for it at the time. Still something might have been learned from the position and shape of the clot, and its relation to the pulmonary artery, whether in the pulmonary artery itself or in one or other of its branches. Specially is it to be regretted, as I have been unable to find a pathological specimen in the Museum of the Royal College of Surgeons, whereby to illustrate this sad puerperal accident.

For long has the presence of clots in the veins, and, at a later date, in the right side of the heart in the lying-in woman been known to physicians; but their association with sudden death after labour had not been recognised, their true pathology and the phenomena to which they may give rise for the most part had been misunderstood. But at an early date there was groping after the truth. As far back as about 140 years ago, Van Swieten recognised that clots occurred in the vessels during the puerperium, and wrote gravely of their prognosis. He even performed experiments on animals, injecting acids into the veins, and bringing about phenomena in some cases identical with what we observe in phlegmasia dolens, and in others the *severe and sudden* symptoms which we know to characterize thrombosis and embolism of the right side of the heart and pulmonary arteries. For long after Van Sweiten's time great darkness hung over the pathology of the subject. But we cannot but admire, in the writings of 100 years ago, the detail of description given of individual cases, as well as comprehensiveness of observation. May I quote from an old book, written by what was then called a "man-midwife," a few quaint and last-century sentences. In 1784 Dr Charles White, a distinguished London physician, writes regarding "white swelling":—"This disease attacks women who are in full strength, and those who are reduced by flooding; those who have a moderate discharge of the lochia, and those who have a small or large quantity; those who give suck and those who do not; whether their breasts be drawn or not; and whether they have a great deal or little milk. It attacks women who were delivered on the knee, and others who were delivered on the side; but of those who were delivered on the side, it appears that the greater number were affected on that side on which they lay at the time of delivery. It attacks women of all ranks and of different habits, both the rich and the poor; the most healthful, as well as those who have laboured under chronic diseases; the strong and the weak; the lean and the corpulent; the sedentary and the active; the young and the middle-aged; after their first or any other labour; and whether the labour be natural or preternatural; but I have not known it happen after a miscarriage, nor to a woman more than once, though she has afterwards had more children. It happens at all seasons of the year indiscriminately, and in the country as well as in large towns. It never attacks either of the arms, or other parts of the body. I have never known it to suppurate or prove fatal, or any material inconvenience to arise from it after a few months have elapsed, except a little swelling of the leg after fatigue, particularly walking." And later on he says regarding white swelling, "that it will probably not be precisely ascertained till it be proved by dissection; and it may be a long time before such an opportunity offers, as this disorder has never been known to prove fatal."

He evidently had not associated the sudden death, which must have occurred then as it does sometimes now, during the course of a white swelling, with the phenomenon of *a travelled clot.* That it was a disease of the lymphatics was long held. Groping after its pathology in one case he says, "I punctured the leg with a lancet in several places, but no water issued, as it does in anasarca." The truth only began to dawn about forty years ago, when Virchow in Berlin and Meigs in Philadelphia began to write on the subject of blood-clots stopping the stream of the circulation,—Virchow advocating that the obstructing clot must always *travel* to the heart and pulmonary arteries; Meigs advocating that it may be found *in situ* in the heart or pulmonary artery as well. Virchow upheld the *embolic* theory, Meigs the *thrombosis* theory.[1] Since then much writing and much discussion have been at work in elucidating the truth regarding emboli and thrombi in the puerperal woman. These, as is now well known, may occur either in the *arterial system* or the *venous system.* In the former there is the tendency for the clot always to travel *from* the heart to the periphery, in the latter always *towards* the heart and lungs from the periphery. The subject of *arterial* obstructions occurring from detached cardiac vegetations blocking up the arteries we need hardly consider, though several interesting cases are recorded by the late Sir James Simpson in his *Selected Obstetrical Works.* In these cases the strain of labour detached vegetations which, carried to the bifurcations of arteries or into the smaller arteries, caused serious complications and delay in recovery, often to loss of limb or even life, as in the case of cerebral embolism. In regard to his recorded cases, I would just mention that he proposed, in the *Monthly Journal of Medical Science,* September 1847, the three following questions:—

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[1] About the same time Miller in Edinburgh and Paget in London published illustrative cases, not puerperal, with post-mortem appearance of the clot.

"1. Was the obstruction of the artery, or arteries, in this case, produced by any mechanical cause, as one of the vegetations separated from the cardiac valves, carried along, in the case of the arm, for example, to the bifurcation of the humeral artery, and impacted there? 2. Was it not rather the result of an original puerperal arteritis? 3. Or might it be the effect of an effusion of coagulable lymph from phlebitic inflammation in the coats of the artery, a secondary phlebitic deposit upon the lining arterial membrane?"

But it is to *the venous part* of the circulation that the case I bring before the Society to-night invites attention, viz., the veins, the right side of the heart, and the pulmonary arteries. Fortunately, no one writer on the subject of pulmonary thrombosis has had many cases of his own to relate; but the cases that are recorded of clots occurring spontaneously in the right side of the heart or pulmonary artery, as I believe to have been the case in my patient, have much the same history; in some, where the main artery has been completely plugged, as in a case recorded by the late Prof. Miller, death occurring at once, and in others, where the plugging was partial, after a struggle of a day or two, or even a much shorter time. Indeed, it would appear that if the patient can be tided through four or five days, recovery may take place; but this seems to be rare.

What then causes coagulation of the blood and the formation of these dangerous clots? We know that in the *puerperal state,* as also in rheumatism, fevers, and other blood dyscrasiæ, such as erysipelas, diphtheria, pneumonia, there is a great increase of fibrine in the blood, according to some authorities even one-third more than in health. We bear in mind also that after delivery there may be severe hæmorrhage, and syncope with the slowing of the blood-stream, increasing the tendency to coagulation. After delivery, too, the blood dyscrasia is increased by absorption of effete matters in the process of uterine involution. With such a coagulable blood, then, need we wonder that a thrombosis or deposition of fibrine should occasionally occur in some part of the venous tract, dangerous in proportion as it is near or far from the heart; or, in other words, whether it gives rise to a *pulmonary* thrombosis, or simply to a thrombosis in the *peripheral* veins, and causing what we are all familiar with as phlegmasia dolens. We have to remember also that plugs normally formed in natural labour in the open orifices of the uterine sinuses, after separation of the placenta, may find their way into the systemic circulation.

Some authorities maintain, among whom, as we have seen, is Virchow, that every case of pulmonary thrombosis has its origin, not in a spontaneous coagulation in the right side of the heart, but in an embolus which has travelled from the seat of some *peripheral* thrombosis. And no doubt this is often the case. For when the coagulum in a phlegmasia dolens is undergoing its retrograde change, a process taking many weeks, a portion is apt to be detached, on movement of the patient, for example, and swept into the circulation, and being carried to the heart and caught at the ramification of the pulmonary artery, may become, like a foreign body, a nucleus for the deposition of fibrine and the formation of a large clot. *Post-mortem* examinations, which are rare, show beautiful examples of this. But it is equally true that what occurs *primarily* in the case of a phlegmasia dolens at the periphery, may also occur primarily in the larger volume of venous blood in the right side of the heart or pulmonary arteries. Or a thrombosis may occur *simultaneously* at the periphery and at the centre. Dr W. J. Playfair in advocating this brings forward clinical facts observed by him in support of it. He refers to cases of pulmonary obstruction that have not proved immediately fatal, and in which, shortly *afterwards*, phlegmasia dolens commenced. Showing thereby, that the coagulum was first formed at the centre, and then at the periphery. Of course, the reverse of this is much more common; still the cases would show that coagulation of the blood may occur in the *first instance* in the right side of the heart. Nor is it always easy to tell from the appearance of the clot found after death what has been its origin. The appearance of clots formed *post-mortem* we are all familiar with. An *ante-mortem* clot, whether originating in a small vein or in the neighbourhood of the pulmonary arteries, appears to present the same features in its process towards absorption. It consists, we know, of layers of decolorised fibrine, firm externally, but softened at the centre where fatty degeneration is taking place. Some pathologists maintain that out of almost every pulmonary thrombus a travelled clot or embolus may be *picked*, and profess to demonstrate whence it came by fitting it into the peripheral vein from which it got detached. Practically, however, from its *mere appearance* it seems difficult to say whether a thrombosis has occurred around an embolus, or formed *in situ without* such a nucleus. It is necessary to take into account the whole circumstances and symptoms of the case, and very especially *the date of attack*, whether soon after delivery, or not for three or four weeks. There seems now to be a consensus of opinion that in the *early* attack the case may be regarded as one of pulmonary *thrombosis*, and in the later, one of pulmonary *embolism*.

In the *Lancet* of 1867, Dr Playfair, in a series of papers "On Thrombosis and Embolism of the Pulmonary Artery as a cause of

Death in the Puerperal State," produces strong argument in favour of the spontaneous origin of pulmonary thrombosis. In regard to these collected cases, Dr Playfair, in his *Science and Practice of Midwifery*, says:—" I there showed, from a careful analysis of 25 cases of sudden death after delivery, in which accurate *post-mortem* examination had been made, that cases of *spontaneous thrombosis* and *embolism* may be divided from each other by a clear line of demarcation, depending on the period after delivery at which the fatal result occurs. In seven out of these cases there was distinct evidence of embolism, and in them death occurred at a *remote* period after delivery; in none *before* the nineteenth day. This contrasts remarkably with the cases in which post-mortem examinations afforded no evidence of embolism. These amounted to fifteen out of the twenty-five, and in all of them, with one exception, death occurred before the fourteenth day, often on the second or third. The reason of this seems to be that, in the former, time is required to admit of degenerative changes taking place in the deposited fibrine leading to separation of an embolus; while in the latter, the thrombosis corresponds in time, and to a great extent no doubt also in cause, to the original peripheral thrombosis, from which in the former the embolus was derived. Many cases I have since collected illustrate the same rule in a very curious and instructive way." I have given this quotation, because twenty-five is a large number of such cases to have studied, and because the opinion of such an eminent authority as Dr Playfair, regarding the lesson to be learned from them, is of value. Meigs of Philadelphia also graphically describes many cases, but in none of his did death occur suddenly. Paget records 17 cases of death associated with clots in the pulmonary arteries. None of them occurred in puerperal females. In 7 death occurred suddenly and unexpectedly. These writers do not record a case, nor does there seem to be any, where the asphyxia came on *before* the birth of the child. In this striking point does the case I bring before you to-night appear to be unique. With her the pulmonary obstruction came on, as we have seen, with all its intensity, while the head of the child was still upon the perineum. In her case, too, there was, as far as we know, no phlebitis, no heart lesion, no hæmorrhage, no syncope to slow the circulation and induce coagulation, no clot from an open uterine sinus, for the placenta had not yet separated. We have reason also to believe that there was no disease of the walls or lining membrane of the pulmonary artery. Simply was there the hyperinosis of advanced pregnancy, a hyperinosis increased by her rheumatic diathesis as the condition for clotting in her right ventricle or pulmonary artery. And as long as there was no displacement of the clot, no plugging of the artery occurred. That no displacement of clot may occur, one of the specimens (kindly lent me by Sir W. Turner) which I showed at last meeting of the Society proved, for in it were to be seen primary clots pressed against the wall of the vessel, and above them strata of more recent clot formation, continued until the calibre of the vessel was all but obliterated. But *displacement* of the clot is much more common, and, as in my patient, the moment the venous wave lifted it from its place and carried it on, the mischief was done. It would appear, then, that even in the presence of a clot, as long as it is undisturbed, the circulation may go on freely enough. And even when the pulmonary artery or a branch does become suddenly plugged, the circulation past the plug must in many cases be partially carried on. This, I would suggest, has an important bearing on the treatment by oxygen, to which I shall presently refer.

Pathological specimens show that clots in the peripheral veins *also* are not attached to the walls of the vessels, and that the blood may circulate more or less freely between them and the vascular walls containing them. But in either case how the patient's safety is in the balance! What consequences might not the slightest movement bring about! Surely, then, we cannot be too careful in warning our patients where there is the slightest suspicion of danger, and in the case of phlegmasia dolens allowing no movement for weeks after the disease appears to have gone. For is it not the case that, apart from all more serious accidents, many a *pneumonia,* or a condition of lung with all the symptoms of a pneumonia, coming on during the puerperium, may be due to the escape of a small embolus from a remote vein finding its way into a terminal branch of the pulmonary artery, forming a hæmorrhagic infarction there, and ultimately destroying a portion of the lung. It so happens that during the present winter several cases of sudden embolic pneumonia have been brought before my notice; but as these were not in the lying-in woman, I need simply mention them in connexion with the possibility of a coagulable condition of the blood being a cause of pneumonia. In these cases the coagulability of blood and the formation of an embolic clot may have been due to a slowing of the circulation from any depressing cause, such as influenza, or to an altered state of the bloodvessels, as much as to a change in the blood itself. The *converse* of this is also true, that pneumonia may be the *cause,* and not the result, of the formation of blood-clot. Dr Gairdner' of Glasgow mentions that he has often found clots in the pulmonary arteries, extending into their ramifications, after death from pneumonia. Remembering that there is no anastomosis between the pulmonary arteries except through their remote capillaries, we see how any obstruction in these capillaries may retard the circulation in the pulmonary arteries, of which they are the terminations, and induce coagulation during life. In post-mortem examinations this coagulation is seen to extend backwards to the right ventricle in the cases to which Dr Gairdner refers. In the puerperium, therefore, we have to bear in mind the possibility of the onset of a pneumonia, associated with blood-clot in the pulmonary arteries, and that this blood-clot may either be the *cause* or the *result* of the pneumonic attack.

In relating my case I referred to the usual treatment which was carried out with all vigour, with the exception of large doses of strong ammonia recommended by some. Since, however, reading the interesting paper by Drs Lauder Brunton and Prickett "On the Use of Oxygen and Strychnia in Pneumonia" (*British Med. Jour.*, January 23, 1892), I have been greatly impressed with the utility of inhalation of oxygen in pneumonia, and regret that to my patient there was not applied a remedy which might have saved her life, and though not a case of pneumonia, still akin to it, as regards the limited amount of blood being aërated. For we have seen that in every case there is at least the passage of some blood past the clot to the lung, and if this could have been hyperoxygenated by the patient inhaling more oxygen, her life might have been sustained until the pulmonary clot had become fragmented or undergone its retrogressive change towards absorption. Less blood reaches the lung or lungs, but then it would carry, in its course from the lungs into the system, a larger quantity of oxygen. Dr Lauder Brunton records a case of pneumonia in a man, aged 40, "moribund, his face livid, the skin cold and covered with a clammy sweat, and loud mucous rattles accompanying every respiration," where $\frac{1}{40}$ grain of strychnine injected subcutaneously in order to stimulate the respiratory centre, and a tube of oxygen allowed to stream into the mouth, were followed by an "extraordinary transformation." In a couple of hours he had "become perfectly conscious, his colour quite healthy, and he expressed himself as feeling comfortable and well." He ultimately died, but, as it was, had his life considerably prolonged, and probably would have been saved by a more timely administration of oxygen.

Dr Blodgett (*Boston Medical and Surgical Journal*) records a case of pneumonia in which the influence of oxygen is said to have been "almost as pronounced and evident as is that of ligature in hæmorrhage." Many similar cases have appeared in our medical journals during the last few weeks. From them we seem to have *in oxygen* a therapeutic agency of great value in diseases both mild and grave. Though it has a bearing on the subject, it almost looks like a parody on my case to mention that ladies in New York are said to prepare themselves for the fatigue of a ball, and with the view of improving their complexion, by putting their mouths to the oxygen inhaler before setting out. Surely, then, we cannot deny to a sister dying from want of oxygen, as my patient was, the inhalation of this life-giving gas. In no case does oxygen seem more likely to save life than in a case of pulmonary thrombosis, where there is no disease, but simply a shutting off of the blood from the oxygen taken into the lungs for its aëration. In my case I believe asphyxia might have been staved off, and the heart stimulated, had oxygen been constantly within reach of the patient in some more concentrated form than in the atmosphere. The mere escape of a little of oxygen gas into her bedroom might have helped,—a method which might be useful in many other affections than the one under consideration, when more oxygen is wanted without the danger of an open door or window. Unfortunately, oxygen is not always at hand in case of emergency, especially in the country. In town, however, it can be easily and quickly prepared at any laboratory, or by any practical chemist, and served to the patient in the simple and portable apparatus I showed at last meeting of the Society. It can also be procured at any time from the Brins Oxygen Works in London, and also from Glasgow, which supply it in a compressed form in iron bottles, and from which a bladder or india-rubber bag can be filled as required. A mouth and nose piece similar to that used in administering nitrous oxide gas may be used, or simply a glass tube introduced into one nostril or into the mouth. Of course, care must be taken that oxydation is not carried to such an extent as to injure the tissues. Half oxygen and half air seem to do well. The normal atmosphere is by bulk only one-fifth part of oxygen, so that this is a large addition.

Perhaps it is too much to expect that an oxygen bottle should be in the equipment of every obstetrician, but accoucheurs might do well to remember oxygen, in the event of a case occurring like the sad one with which I have introduced this paper. With the use of this additional means one would at least have the satisfaction of feeling that all had been done whatever might be the issue.

IV.—CONTRIBUTIONS TO THE SURGICAL ANATOMY OF THE BREAST AND AXILLARY LYMPHATIC GLANDS.

(From the Surgical Laboratory of the University of Edinburgh.)

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(*Read before the Edinburgh Medico-Chirurgical Society*, 6*th January* 1892.)

(*Concluded from p.* 1112, *vol. xxxvii.*)

When the breast is treated with nitric acid, according to the method described in my previous paper, it becomes at once evident that the limits which our text-books on anatomy and operative surgery have accorded to the gland are not sufficiently wide, and that the breast-tissue extends much further in every direction than is generally supposed. The result is that surgeons almost invariably, though unwittingly, fall short of their intention to remove the entire gland.

The breast is described as extending from the third to the sixth by some authors the seventh) rib in the vertical direction, and from the edge of the sternum to the anterior fold of the axilla horizontally.

Such a description would appear to be drawn, either from landmarks afforded by the external configuration and surface anatomy of the organ, or without account being taking of its peripheral processes. The extent to which the mamma overlies the axilla appears to have been more appreciated by the sculptor than by the anatomist. It must be clearly understood that the apparent surface limits of the mamma do not correspond to the extent to which the parenchyma is distributed within the subcutaneous tissue of the anterior wall of the thorax: indeed, in many instances it affords no indication of this. The peripheral processes of the *corpus mammæ* extend beyond—often far beyond—the surface projection of the breast; and this holds true in nulliparous as well as in multiparous women, though much more so in the latter.

In nulliparæ, the mamma projects at right angles from the chest. It is self supporting, so that there is no sulcus at the lower segment of its base. Its size depends on the amount of circum-mammary fat, as well as on the amount of breast-tissue proper. A breast which is hemispherical in form indicates a relatively large amount of circum-mammary fat, whereas one which is conical possesses a thicker *corpus mammæ* and a relatively greater amount of breast-tissue proper.

During pregnancy and lactation the breast undergoes considerable enlargement. The stroma is more succulent, and during involution undergoes a partial adipose transformation. After maternity, therefore, the firmness and compactness of the breast are permanently diminished, so that it tends to be pendulous, and a more or less well-marked sulcus is produced where it overhangs its base. In multiparæ who are, or who have been stout, the mammæ are very pendulous. When excising such a breast, it should be borne in mind that the base of the organ undergoes but little downward displacement, and therefore the operator must not be deceived as to the real limit of the upper hemisphere.

For clinical purposes, the mamma is subdivided artificially into four quadrants, by means of vertical and horizontal diameters intersecting each other at right angles at the nipple. The quadrants are named upper-inner, lower-inner, upper-outer, lower-outer respectively. Two adjacent quadrants constitute a hemisphere. For anatomical as well as for clinical purposes, descriptions may be rendered still more precise by the addition of two oblique diameters reaching the circumference midway between the vertical and the horizontal ones. We may employ these oblique diameters either alone or in conjunction with the others. When employed alone, they subdivide the breast into quadrants, which may be spoken of simply as upper, lower, inner, and outer respectively.

I have taken advantage of all four diameters in order to arrive at a more accurate knowledge of the anatomical relations of the base of the organ to the skeleton and muscles of the chest. For opportunities of verifying and defining the observations I had made in the operating theatre, I am indebted to Sir William Turner and Dr Symington. In the dead subject, the real circumference of the mamma may be mapped out by inserting pins in the chest wall at the points of farthest extension of the gland,—in other words, at the extremities of the four diameters. The vertical diameter extends from the lower border of the second rib to the sixth costal cartilage at the angle where it begins to sweep upwards to the sternum; the horizontal, from a little within the edge of the sternum opposite the fourth rib or interspace to the fifth rib or interspace opposite the mid-axillary line. The one oblique diameter extends from the upper border of the third costal cartilage a little without the sternum downwards and outwards to the seventh rib a little in front of the mid-axillary line; the other oblique diameter passes from the third rib a little beyond the anterior axillary fold downwards and inwards to the sixth costal cartilage midway between its angle and its sternal end. The circumference of the organ may be defined by connecting together the extremities of all the diameters. When the arm is elevated, as for an operation, the nipple in a nullipara is placed opposite the fourth rib or interspace, and only about one inch within the axillary border of the pectoralis major, thus showing that the extent to which the breast overlaps the muscle is very considerable. The level of the breasts varies somewhat according to the configuration of the chest,—thus tall women generally possess a low bust, while short, broad-chested women have usually a high bust.

The above limits, though considerably wider than those given in our anatomical and surgical works, are certainly not exaggerated; and the surgeon cannot hope to remove the whole of the breast-tissue unless in conducting his operation he keeps outside of them. It is important, therefore, to ascertain the relations of the entire mammary area to the muscles of the chest-wall, since these afford the surgeon important guides in estimating the extent of his operation. In describing these deep relations we shall again make use of the various diameters subdividing the mammary area. The inner hemisphere rests almost entirely on the pectoralis major; at its lowest part it extends beyond the lower edge of this muscle, and slightly overlies the aponeurosis of the external oblique of the abdomen. The outer hemisphere has less simple relations, and must be dealt with in segments. The upper half of its upper quadrant rests on the greater pectoral, on the edge of the lesser pectoral, and, for a slight extent, on the serratus magnus, upon which, and under cover of the pectoralis major, it extends upwards into the axilla as high as to the third rib. Spence was in the habit of referring to this prolongation as the "axillary tail" of the mamma. The circumference of this segment crosses the edge of the pectoralis major at the level of the third rib,—that is, just where the muscle leaves the chest-wall to form the anterior axillary fold. The lower half of the upper quadrant, and the upper half of the lower quadrant, rest almost entirely on the serratus, with the exception of a small area adjacent to the nipple, which overlies the pectoralis major. The lower half of the lower quadrant has relation to the digitations of the serratus and external oblique which arise from the fifth and sixth ribs, and the part near the nipple lies on the pectoralis major. It will thus be seen that about one-third of the whole mamma lies inferior and external to the axillary border of the pectoralis major. Of this portion the upper half overlies the lower part of the inner wall of the axilla, and is separated from its contents only by the axillary fascia, which is here very fatty, so that the lymphatic glands lying imbedded in it appear to be in direct contact with the breast.

I now pass to the axillary lymphatic glands. These are so intimately associated with the mamma, both anatomically and functionally, that they call for an equal share of attention. They are described as follows in Quain's *Anatomy* (tenth edition, vol. ii., part ii., p. 556):—"The axillary glands are generally twelve or more; they vary much, however, in their number, as well as in their size, in different individuals. From four to six are placed along the axillary vessels, and receive the lymphatics which ascend from the limb; four or five small *pectoral glands* lie further forwards on the serratus magnus near the long thoracic artery, at the lower border of the pectoral muscles, and receive the lymphatics from the mamma and front of the chest, while three or four subscapular glands are situated at the back of the axilla along the subscapular vessels, and are joined by the lymphatics from the back. One or two small *infra-clavicular glands* are also found immediately below the clavicle in the hollow between the pectoralis major and deltoid muscles; they receive some lymphatics from the outer side of the arm and shoulder, and are connected above with the inferior cervical glands, below with the axillary glands. The efferent vessels of the axillary glands ascend with the subclavian vein, and form by their union in some cases a single trunk (axillary lymphatic trunk), in others two or three large vessels, which terminate on the left side in the thoracic duct, on the right side in the right lymphatic duct. Sometimes they open separately into the subclavian vein near its termination."

In the normal condition, one is rarely able to feel any glands through the coverings of the axilla. In morbid conditions of the breast, the pectoral glands are almost invariably the first to undergo enlargement. In the later stages of carcinoma all four groups may be diseased, but generally the humeral and subscapular groups escape. Occasionally, the glands above the pectoralis minor, in the apex of the axilla, and under the clavicle, are diseased, while the pectoral glands are normal. This points to the probability that some of the lymphatics from the mamma pass to join the glands at the upper part of the axilla directly, without entering the pectoral group; and, as far as my observations go, this would appear to be the case when the tumour is central, and more especially when the skin about the nipple and areola is implicated. Some of the lymphatics which are efferent for the pectoral glands, become afferent for glands higher up towards the apex of the axilla.

When the parts which have been removed from the axilla (in connexion with mammary operations) are carefully examined, one is struck with the great variation in the appearance as well as in the number of the glands. As many as twenty, thirty, or even more may not infrequently be counted when the axilla has been thoroughly cleared out. The reasons for the anatomical underestimation of the number of glands in the axilla are, that some measure not more than one or two millimetres in diameter, while others have undergone such an extensive fatty involution as to resemble closely an ordinary fat lobule. What may be regarded as the typical glands vary from about the size of a grape stone to that of a small pea. In the region of the hilus the lymphoid tissue becomes replaced by a greater or less amount of fibrous tissue, which serves to support the main divisions of the blood-vessels and efferent lymphatics; and from this connective tissue processes are given off which ensheath the vessels, and in their turn give origin to the delicate connective tissue recticulum, in which the leucocytes of the follicular parts of the gland are entangled. The reticulum occupying the lymph sinuses is produced from the retiform branching of delicate connective tissue processes which are given off from the fibrous trabeculæ penetrating the gland from its capsule. The afferent and efferent lymphatics lose their adventitious and muscular coats where they respectively open into and out of the lymph sinuses, the endothelial lining of which is continuous with that of the lymphatics. If sections of the gland which have been stained with nuclear dyes be examined under low magnifying power, there will be observed, scattered here and there throughout the gland, rounded foci or masses of cells which have stained less deeply than the follicular tissue generally. These are the germ centres (Keimcentren) of Flemming.[1] They are always embedded in the lymphoid follicles, or in the lymphoid cords of the gland, and they are most numerous in the cortical region. When more highly magnified, the cells that form the centres are seen to be larger than the densely crowded lymphoid cells that surround them. A closer comparison of the two kinds of cells shows that those forming the germ centres possess larger and less deeply stained nuclei, and a greater amount of perinuclear substance. These are fully developed leucocytes, in many of which mitotic figures may be seen: in other words, they are centres of proliferation, the daughter cells—the small lymphoid cells—having migrated and become crowded together around them. These lymphoid cells find their way into the lymph sinuses, and ultimately reach the blood as young leucocytes.[1] In examining axillary glands for malignancy, it is important that one should be familiar with these germ centres, otherwise they might be mistaken for cancerous foci.

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[1] "Studien über Regeneration der Gewebe," *Arch. f. Mikr. Anat.*, vol. xxiv., 1885.

Having referred to the essential points in the microscopic anatomy of a gland, I wish now to describe one or two departures from the normal type. Although these have been studied mainly from material derived from patients suffering from carcinoma of the mamma, I may state that I have also met with similar conditions apart from cancer, and in other regions of the body; for example, in the neck, the anterior mediastinum, the groin, and the popliteal space. No doubt they occur throughout the body generally.

In the first place, the very minute glands, which do not exceed one or two millimetres in diameter, possess a very primitive structure, and afford a clear demonstration of the essential parts of a gland. Here we have to deal merely with a single lymphoid follicle, between which and the connective tissue capsule is an unbranched lymph sinus connected with only one afferent and one efferent lymphatic. A germ centre may sometimes be observed in the centre of the follicle, thus proving that these little glands are functionally active. They correspond closely to the endolymphangial nodules which Klein[2] has described as occurring in the serous membranes. They differ from the solitary glands of the alimentary and respiratory mucous membranes in the possession of a distinct capsule, which is doubtless the thickened wall of the original vessel, inside of which the follicle has developed.

Secondly, the glands, which have undergone a more or less complete fatty involution, are found in variable numbers during the resting state of the mamma, both before and after the menopause. Their size also varies greatly. They may be no larger than a grape stone, or they may reach the size of a filbert, or may be even larger. Their number and size are greatest in women who have become obese after the menopause, and whose breasts have therefore undergone very extensive fatty transformation. The naked-eye appearance of a bisected fatty involuted gland is peculiar and characteristic. It differs markedly both from that which is presented by a typical lymphatic gland on the one hand, and by an ordinary fat lobule on the other. The hilus is represented by a more or less distinct notch, opposite which, and immediately under the capsule, is a narrow crescentic layer of lymphoid tissue, occupying the whole or a greater part of the circumference of the gland. The extremities of the crescent often curve into the substance of the gland at the hilus. This lymphoid tissue possesses a uniform grayish-pink and fleshy appearance, resembling granulation tissue. Within the lymphoid crescent, and forming the bulk of the gland, is the fatty portion, which is softer and more bulging. It differs, however, from ordinary fat, both in appearance and in consistence. It is firmer and has a pale grayish colour, almost without any yellow tint, and with but little of the oily aspect of ordinary fat. The interpretation which has, I believe, frequently been given of these appearances is that the firmer, more vascular, grayish-pink concentric zone represents the cancerous portion of a malignant gland, while the fatty medullary portion is looked upon as the remains of the normal gland tissue. Microscopic examination, however, at once reveals the error. At first sight one gets the impression that the structure is not a lymphatic gland at all, but is merely an ordinary fat lobule, the peripheral portion of which is occupied by an inflammatory leucocyte infiltration. Further investigation shows that every stage of transition exists between almost complete fatty metaplasia and what may be looked upon as a typical lymphatic gland. The earliest sign of fatty involution is evinced by a fatty metaplasia of the cells of the connective tissue in the region of the hilus; next, the connective tissue framework of the medullary part of the gland becomes involved; and, finally, the whole gland, with the exception generally of an incomplete and very thin layer immediately under the capsule, becomes converted into adipose tissue. The lymphoid tissue that remains is always the cortical portion, the follicles of which may still contain germ centres, showing that the gland is not completely functionless. A distinct lymph sinus (subcapsular sinus) containing a retiform network intervenes between the capsule and the lymphoid tissue, and is continuous with other sinuses that surround the connective tissue trabeculæ penetrating the gland from the capsule. These, again, are continuous with lymphatic channels which run from the inner margin of the lymphoid zone through the fat towards the hilus, where they unite to form wider channels which emerge at the hilus as the efferent vessels. Afferent lymphatics may be seen opening into the subcapsular sinus, just as in an ordinary gland. The microscopic appearances of the fat differ from that of an ordinary fat lobule, not only in possessing many large lymph channels, but also in the correspondingly large number and size of the bloodvessels which pass to and from the hilus. The presence of so many large blood and lymph vessels in the fat accounts for the more porous, more vascular, more serous, and less oily appearance which distinguishes it from ordinary fat.

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[1] For further details as to the functions and origin of these structures, Gulland's paper "On the Function of the Tonsils," *Edin. Med. Journal*, 1891, may be consulted.

[2] *The Anatomy of the Lymphatic System*, part i.

In order to understand the manner in which this fatty involution or metaplasia is brought about, and the conditions in which it occurs, we must remember that these lymphatic glands are associated both functionally and anatomically with the mamma. In my paper in the last issue, I showed that the mamma undergoes important structural alterations in relation to its various functional states. The process of involution of the mamma, whereby it passes from the condition of full functional activity to a state of rest, is attended not only by partial atrophy of the parenchyma, but also by a conversion of much of the connective tissue into fat. After the menopause, the more or less complete atrophy of the parenchyma is, except in spare women, accompanied by a still further fatty transformation of the stroma; and in obese women very little of the original stroma remains.

The fatty involution of the axillary glands corresponds exactly to the process above described in the mamma; that is to say, we have an atrophy and absorption of the follicular tissue, along with a fatty metaplasia of the connective tissue framework.

During the functional state of the mamma, the lymph which is drained from it to the glands is greater in quantity and altered in quality as compared with its resting and atrophied state. There is an increase both in the deposit and in the production of leucocytes in the lymph glands, the increased production being shown by the large number and size of the germ centres present.

During the resting condition of the mamma, and still more after the menopause, the deposit and production of leucocytes within the lymphatic glands are very slight. More leucocytes are washed out of the glands by the circulation of the lymph through them than are conveyed to them or manufactured in them. Accompanying this decline of function, and no doubt in some way associated with it, is the fatty transformation of the connective tissue framework. The cortical part of the gland, which is always the most active functionally, is the last to undergo the change.

This fatty involution or metaplasia of lymphatic glands appears to me to afford a field for speculation and further study, especially in its possible relations to such diseases as lymphadenoma, tubercle, syphilis, etc. It is not difficult to account for the large number of glands which come into prominence in these diseases, as compared with the number which anatomists describe as existing normally, if we consider that many of the glands which have become enlarged are such as had normally undergone fatty involution, but which, as a result of the irritation to which they became subject in these diseases, have again become evoluted and diseased.

The fatty involuted axillary glands are of interest to the surgeon both clinically and pathologically. As a rule, palpation through the coverings of the axilla gives no indication of their presence, although occasionally, when large and numerous, they give rise to what is often spoken of as a "fulness in the axilla." They are usually discovered when the axilla is explored from the wound made to excise the breast, and are then spoken of as "enlarged glands," and, as I have already pointed out, are either regarded as malignant, or are looked upon with the greatest suspicion. In stout women, their resemblance to an ordinary fat lobule is such that they are liable to be overlooked by the surgeon who is content with exploring the axilla with the view of discovering and "shelling out" only those glands that are distinctly indurated. During the operation, they may be distinguished from fat lobules by three positive characters, viz,—(1.) When grasped between the finger and thumb they are firmer and more elastic; (2.) They possess a distinct capsule which enables them to be readily shelled out from the surrounding fat; (3.) During their removal, the blood and lymph vessels connected with them are brought into view, and have to be torn or cut across before they can be completely separated. The larger they are, the thinner and more stretched is the capsule. Their greater firmness and elasticity as compared with an ordinary fat lobule are due to the greater tension under which the fat and the lymph are confined within the capsule.

When one of these glands is treated with a five per cent. solution of nitric acid, the cortical zone of lymphoid tissue becomes dense and opaque white, and remains so after being subsequently washed in water. The fatty portion is unaltered. By this means, therefore, the true nature of the gland is clearly revealed. In my last paper, I showed the value of the nitric acid method in differentiating cancerous tissue in the breast. It is necessary to point out, however, that the same method does not render the detection of cancer in a lymphatic gland any easier than it would be in the fresh and natural condition, since the lymphoid tissue, on account of its highly cellular and therefore also highly albuminous nature, reacts to the nitric acid in much the same way as cancerous tissue.

Microscopic examination of fatty lymphatic glands, which have been removed along with a cancerous mamma, shows that the fatty part of the gland is being invaded by leucocytes, especially along the lines of the blood and the lymph vessels. This leucocyte infiltration is accompanied by a connective tissue and endothelial proliferation, especially noticeable at the invading edge. It would appear, therefore, that the irritation and cell activity which is going on in the mamma so affects the axillary glands as to produce an evolution in them, whereby they become converted again, more or less completely, into lymphoid tissue. The transformation, when complete, results in what is spoken of as a "simple" enlargement of the gland. The simple enlargement of the glands, which is often associated with the presence of simple neoplasms, cystic disease, chronic mastitis, etc., is no doubt brought about in the same way from glands which have undergone more or less fatty involution. The same glandular enlargement may be observed in other regions of the body, when the parts from which the lymph is derived are under similar pathological conditions.

Some surgeons are inclined to look upon all glandular enlargements associated with carcinoma as necessarily malignant. Such a view, while incorrect pathologically, errs on the safe side from the therapeutical point of view. Professor Chiene has long been in the habit of pointing out that this simple enlargement of lymphatic glands is especially liable to be associated with malignant disease when attended with ulceration and sepsis, and that when the tumour is removed the glandular enlargement disappears. I have on several occasions microscopically examined enlarged (often much enlarged) glands removed from the axilla, neck, and groin, in cases of malignant disease of the breast, tongue, and penis respectively, without discovering any cancer in them. Such enlarged glands may or may not be the seat of acute or chronic inflammation. When acutely inflamed they are only slightly indurated, of a red or reddish-purple colour, and often mottled with minute hæmorrhages. Vascular engorgement, rupture of capillaries, and choking of the lymph sinuses with leucocytes and red blood corpuscles, express the microscopic appearances. Simple enlargement with chronic inflammation gives rise to greater induration; the inflammatory hyperplasia affects especially the connective tissue framework of the gland, which is often seen to have undergone a marked hyaline degeneration. The lymph sinuses contain proliferated connective tissue and endothelial cells, rather than leucocytes. Glands of this description are frequently found where the breast is the seat of a simple tumour of cystic disease and of chronic mastitis. In the circumscribed variety of the latter disease their presence only serves to add in some cases to the difficulty of distinguishing it from carcinoma.

While I have hitherto spoken of the fatty glands as originating only from pre-existing glands, I am not prepared to say that this is the only way in which they are produced. On the contrary, there is evidence to show that they may possibly also be developed simply from fat lobules, which are more closely related to the lymphatics than usual, in the same way that some fat lobules possess a distinct afferent artery and efferent vein united by a capillary network occupying the substance of the lobule. In the breast itself, especially when the seat of a rapidly infiltrating carcinoma, I have certainly observed the formation of lymphoid nodules and germ centres in connexion with the perivascular lymphatics of a small artery and vein, which occupied a delicate connective tissue lamella of the intra-mammary fat. A similar new formation of lymphoid tissue occurs sometimes at certain points around the vessels and lymphatics which lie between the fat lobules of the axilla.

Lymphatic glands, when cancerous, are frequently so extensively diseased that no trace of the original lymphoid tissue remains. When this is the case, they are characterized clinically by marked induration, and usually by enlargement. Occasionally several cancerous glands are matted and conglomerated into a mass of the size of a child's fist. In cases where the disease is confined to the medullary part of the gland, the cortical region responds to the irritation produced by the cancer, the result being an increase in the number and size of the germ centres, and a dense accumulation of lymphoid cells (young leucocytes) around them. All the varieties of lymphatic glands I have referred to may be cancerous,—that is to say, may contain cancer cells. Theoretically the initial stage of the disease consists in the deposit in the gland of a single cancer cell, which has been conveyed to it from the cancerous mamma along the lymphatics. Although it is practically impossible actually to demonstrate this, one may nevertheless observe the condition in which only a few cancer cells exist in the gland; they generally occupy the subcapsular sinus, that is, just the place where anatomically we should expect to find them. I possess a microscopic section of a fatty lymphatic gland showing this state of affairs. The preparation was made to show the normal structure of the gland, which, to the naked eye, appeared to be absolutely healthy. Such a gland, in consequence of the fatty change which it has undergone, feels even softer than a normal gland when made up entirely of lymphoid tissue. It follows, therefore, that the absence of induration does not always signify freedom from malignancy. Again, it must be remembered that the smallest glands are sometimes malignant. As in this condition they may be no larger than an ordinary pin's head, the absence of enlargement does not necessarily imply non-malignancy.

The main lymphatic trunks of the axilla run for the most part alongside of the bloodvessels. In consequence, however, of their small size and the thinness of their walls, it is difficult to display them by dissection. The afferent vessels of a gland are more numerous, but smaller than the efferent. The microscopic structure of the wall of a lymphatic trunk closely resembles that of a small vein. Indeed, when they are isolated and empty it is sometimes difficult to say with which one is dealing. If, however, the lymphatic is lying side by side with bloodvessels, it may be recognised by its more or less collapsed, longitudinally folded, and relatively thin wall. The lumen is small and stellate, and is either empty or contains a little granular matter and a few leucocytes. Judging from the extent to which the wall is folded, the calibre of the vessel when distended must be very large relatively to the thickness of the wall—a relationship which appears to hold true throughout the lymphatic system generally. As regards the coats of the lymphatic, one fails to detect the well-marked differentiation between the muscular and the adventitious layers. In the small arteries the middle coat is purely muscular and the outer purely fibrous. In the veins there is a considerable admixture of fibrous and elastic tissue between the muscular fibres of the middle coat. In the lymphatic trunks the whole thickness of the wall outside the internal coat is made up of a mixture of muscular and fibrous tissue in about equal proportions. The muscular fibres are collected into small bundles separated from one another by the loosely felted white and yellow connective tissue fibres. Another distinguishing feature of the lymphatic is that the muscular fibres, instead of all running circularly, as in the case of the bloodvessels, run many of them longitudinally. The majority of the circular fibres lie internal to the longitudinal, but frequently the two sets of fibres are mingled. Valves, consisting of two opposed segments, are placed at frequent intervals along the main lymphatic trunks. They consist of a reduplication of the endothelial layer of the vessel. A transverse section opposite the valve gives the appearance of a treble lumen to the vessel, the middle compartment being bounded on either side by the section of a segment of the valve which is so extensively pleated as to present a very zig-zag edge, thus showing how greatly distended the vessel would have to become before the valve became incompetent.

The important part played by the lymphatics in carcinoma of the mamma has already been referred to. Surgeons are in the habit of indicating their cognisance of this fact by sometimes referring to a "thickening" of them, which may be felt, not only when the axilla is opened up, but even through its coverings. As the result of the examination of the parts removed from over a hundred axillæ in cases of cancer, I am satisfied that the lymphatics are in no way responsible for this stringy feel. The condition is felt most distinctly in spare women with more or less atrophied breasts, and is due to the presence of the ducts of the breast tissue, which run like so many branched strings under the edge of the pectoralis major, and upon the surface of the serratus as high up in the axilla as the third rib. They are, in fact, the ducts belonging to what Spence used to speak of as the "axillary tail" of the mamma. That this is the case may readily be demonstrated by stripping off the fascia from the posterior surface of the breast (with which the axillary tissue is left in contact), and then by applying the nitric acid method to it. The structures which give rise to the stringy feel will appear as opaque white lines, which may occasionally be traced as far as the cancerous glands. Microscopic examination shows that they are mammary ducts and not lymphatics. One may examine both macroscopically and microscopically the tissues from many cancerous axillæ without being able to discover any disease whatever in the lymphatic trunks. It is evident, therefore, that as soon as the cancer cells reach lymphatics of any size, they are swept along them to the glands, in the same way that an embolus is washed along a vein. The lymphatics do not always escape in this way, because stationary cancerous emboli are frequently present in the smaller vessels, and of course can only be discovered by microscopic examination. They subsequently invade the wall of the lymphatic, and give rise to nodules of cancer which are distinct from the lymphatic glands. In the comparatively few cases in which I have found the main trunks diseased, the cancer cells could always be traced as far as a malignant gland, the lymph sinuses of which, in consequence of being blocked, had no doubt caused a heaping up of the cancer cells behind them.

It is very doubtful whether a cancerous condition even of the largest axillary lymphatics can be detected during the operation. Examined microscopically, the wall is seen to be thickened—a condition due to chronic lymphangitis. The lumen is filled with cancer cells. To the naked eye, therefore, such a diseased lymphatic resembles a small bloodvessel which has been plugged or obliterated.

After describing the anatomy of the parts concerned in carcinoma of the mamma, I showed a number of photographs to illustrate the manner and extent of their involvement in the disease. As regards the tissues extrinsic to the mamma, viz., the skin, subcutaneous fat, pectoral fascia, and muscles, the preparations show conclusively that their diseased condition consists in the presence of cancer cells here and there in their lymph spaces and lymphatic vessels. The cancer cells do not originate from the cell elements of these tissues; they are the descendants of pre-existing cancer cells, and have been conveyed thither by the lymph stream, and occasionally also by the bloodvessels. The inflammatory connective tissue hyperplasia, attended with more or less leucocyte exudation, is a secondary element in the disease. The term "recurrent," applied to the disease which manifests itself after operation in these extrinsic structures, is obviously a misnomer, since what really occurs is a continuance of the original disease which was already present at the time of the operation, and which in the course of its life history becomes, from a structure visible only with the microscope, a palpable nodule. I have already shown how seldom all the gland tissue is removed in operations for cancer of the breast. The question, therefore, arises, "What part does the breast tissue that has been left behind play in the production of recurrence?" Surgeons are not agreed on this point, and herein lies the difference of opinion that exists regarding the necessity of removing the entire breast in all cases of carcinoma.

Mr Butlin,[1] in arguing against radical operations as a *sine qua non,* says,—"Certainly in the majority of instances there is nothing to lead one to believe that the new growth arises in the outlying lobules of the mammary gland, or in any remains of the parenchyma of the gland." Heidenhain,[2] on the other hand, in a very admirable paper, read before the German Congress of Surgeons in Berlin in 1889, maintains that in carcinoma of the mamma there are proliferative changes in the lobules throughout the whole gland, which must be looked upon as the direct forerunner of cancer ("das mittelbare Vorstadium der Krebsentwickelung"), and that sooner or later will pass into typical cancer.

My own observations on the causes of recurrence of cancer of the breast lead me to take up an intermediate position. I hold that when cancer manifests itself in breast tissue which has been left behind, the disease originates in the majority of cases from pre-existing cancer cells derived directly or indirectly from the original tumour, and occupying the lymph spaces or lymphatics of the stroma. In other words, "recurrence" in breast-tissue which has been left behind originates in the same way as "recurrence" in the tissues extrinsic to the mamma and in the axilla. While admitting that recurrence may originate from the epithelium of mammary acini which has been left behind (just as the original tumour has arisen from mammary epithelium), I maintain that it does not necessarily do so; on the contrary, I believe it to be a quite exceptional cause of recurrence. I am familiar with the various conditions which Heidenhain[1] refers to as existing in the acini and lobules, both adjacent to the tumour and to the "surgeon's cut-surface." The conditions which he looks upon as pre-cancerous present histological appearances which are very different from those of cancer proper. In the case of many breasts they are not only altogether absent, but when they do occur the most careful examination of all parts of the organ fails to detect the transitional stages of their development into cancer; moreover, these so-called pre-cancerous conditions are also met with in breasts which are the seat of chronic mastitis, cystic disease, etc. I would therefore advocate that the principle which should underlie all operations for carcinoma of the mamma (or carcinoma wherever situated) is the complete removal, not only of the tumour and the organ in which it lies, but also of as much of the surrounding tissues as is likely to contain the lymphatic spaces and highways along which the malignant elements of the disease (as far as our present knowledge goes—the cancer cells) have been disseminated. Unfortunately, it is impossible in any given case to say to what extent this may have taken place. Here exactly lies the difficulty and uncertainty of the operative treatment of malignant disease. Much, however, may be done by a more careful study of the histological relations of the tumour elements to the organ, and especially to the lymphatics of the part in which it is situated. In the present state of our knowledge the surgeon will do well to err on the side of sacrificing too much rather than too little tissue.

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[1] *The Operative Surgery of Malignant Disease*, p. 378.

[2] "Ueber die Ursachen der localen Krebsrecidive nach Amputatio Mammæ," *Verhandlungen der Deutschen gesellschaft für Chirurgie*, Berlin, 1889.

Professor Dennis,[2] in his paper on "Recurrence of Carcinoma of the Mamma," admirably puts the case when he says,—"The recurrence of carcinoma of the breast is influenced by the radical character of the operation itself. No procrustean rule can be laid down in regard to the extent or character of the operation for the removal of carcinoma of the breast which would meet the exigencies in every case. There is, however, a standard operation which is none too severe to meet the necessary conditions in every case. The uniform classical operation should include the entire breast gland, all the fatty areolar connective tissue in the vicinity, the integuments over the circumscribed area of the tumour, and as much more as is necessary, leaving out of consideration altogether the question of flaps to cover the wound, and, finally, the pectoral fascia." In another part of the paper he again refers to this as follows:—"I am a strong advocate of always removing in every case, to which there is no exception, the entire breast, with the pectoral fascia and the lymphatic glands, as the minimum operation in the most insignificant scirrhus. The operation in nearly all cases must extend beyond the limits of the breast, and include a most radical one."

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[1] *Loc. cit.*

[2] *Trans. of the American Surgical Association*, vol. ix. 1891, pp. 226 and 229.

It is worth while to inquire how this "standard" and "minimum" operation should be carried out in order to give the best chance of removing all the disease with, at the same time, the least amount of mutilation. The first and perhaps the most important step in the operation is to make suitable skin incisions. Although these must vary with the position of the tumour and the amount of skin invasion, there is nevertheless a definite principle to be followed in all cases, and that is so to plan the incisions as best to facilitate the removal of the entire organ, and at the same time of whatever skin is diseased or is at all likely to be so. Let us take, for example, the case of an ordinary circumscribed scirrhus, with the skin over it not obviously involved. According to Gross,[1] the plan to adopt would be "to carefully palpate the entire mammary region while the patient is supine, in order to discover any outlying lobules, should they exist, and then with an aniline pencil to draw a line round the entire circumference of the breast as a guide for the knife. If the tumour be peripheral, the incision must extend for at least one inch beyond its apparent limit. A stout large knife is then carried along the line down to the pectoral muscle." Such a method, in my opinion, is open to great objection. In the first place, from what has been said of the arrangement and extent of the breast, it is obvious that the circumference of the gland cannot be defined by palpation. Gross's "circle" will be considerably smaller than that formed by the real circumference of the gland, so that to cut directly down along it to the pectoral muscle would necessarily leave behind more or less of the peripheral processes of the gland. Such a method, besides leaving behind breast-tissue, and removing too little of the circum-mammary fat, is open to the objection that it sacrifices an unnecessary amount of skin. In a simple case, such as that we are referring to, it is quite unnecessary to remove a large circle of skin. The old elliptical incision, if sufficiently large, is the best incision to employ, so far as the removal of the entire gland is concerned, and it should be made parallel to the oblique diameter of the mamma, its lower extremity reaching well down below the costal margin close to the ensiform cartilage, and its upper extremity terminating at the outer border of the pectoralis major opposite the third rib. The ellipse should be widest opposite the nipple, and should there measure at least four inches across. In stout patients it can be made much wider, and will still allow the edges of the wound to be brought in contact. In an obese patient recently operated on by Professor

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[1] Mann's *System of Gynecology*, vol. ii. p. 314.

Chiene, the edges came together without difficulty, after the removal of an ellipse measuring twelve by eight inches.

The axilla is laid open by carrying an incision from the outer extremity of the ellipse along, or a little below, the edge of the pectoral across the axilla to its outer wall, as far as the angle between the lower edge of the tendon of insertion of the pectoral and the inner border of the biceps. The axillary incision should be made at the same time as the ellipse, and both should extend down to, but not through, the subcutaneous fat. If the ellipse includes the whole of the skin over the tumour, the surgeon may at once proceed to reflect the flaps off the breast; but, if the tumour does not fall within the ellipse, the skin over it should be removed by a triangular incision (as recommended by Dr Joseph Bell, *Edinburgh Medical Journal*, 1871), the base of which forms part of the ellipse. This plan should be followed not only when the skin is evidently involved, but even when it is freely movable and apparently healthy. It will be obvious that unless such a method be adopted, the ligaments of Cooper, containing lymphatics in direct continuity with those about the tumour area, and therefore liable to contain cancer cells, will be left, and consequently recurrence in the skin or subcutaneous fat is liable to occur. I believe neglect of this procedure is often responsible for the superficial recurrent nodules which are not infrequently observed in and close to the cicatrix. A combination of these incisions will be most suitable in the majority of cases in which the tumour is peripheral—the result being a T shaped cicatrix. The lower and outer flap should first be dissected off the breast, keeping as close to the skin as is consistent with the maintenance of its vitality. This dissection should be carried as low down as to the seventh rib in the mid-axillary line. The upper and inner flap is reflected inwards beyond the edge of the sternum, and upwards almost as high as the clavicle. It is to allow of this free dissection that we recommend that the axillary incision should be made at the same time as the ellipse. The breast, with the exception of the axillary portion, should now be freed from the chest wall along with the fascia of the muscles which underlie it, viz., pectoralis major, serratus magnus, and obligus externus. Unless the upper digitations of the latter muscle be laid bare, the probability is that some peripheral processes of the gland have been left. The axilla is dealt with by first cleaning the edge of the pectoralis major as far as the biceps; in this way the axillary fascia is divided and the axilla opened into. The axillary vein is exposed at this stage lying immediately underneath the fascia at the outer extremity of the incision. The fat and glands should be removed as far as possible *en masse*, by working in the first instance from the edges of the pectorals back to the latissimus dorsi so as to expose the serratus magnus and subscapularis. The intercosto-humeral nerves, which come into view at this stage of the operation, may be avoided, and care should be taken not to injure the two lower subscapular nerves. The dissection is then continued along the inner wall under the pectoralis minor to the apex of the axilla. Finally, the fat and any glands are to be separated from the axillary vessels; and care must be taken that branches of the axillary vein which come into view are not torn through close to the parent trunk.

As regards the treatment of the wound, if the operation be conducted according to aseptic principles, no drainage tube is required, and the case will generally not require to be dressed until the end of a week, when the stitches may be removed. If, however, strong antiseptics have been employed to douche out the wound, both before and after stitching, the copious serous exudate caused thereby necessitates, in my opinion, the use of a drainage tube for the first twenty-four hours. The above operation is, I believe, sufficiently radical for simple cases.

When, however, the skin over the tumour is involved, its removal must include a wide margin of apparently healthy skin. When, in addition to being invaded in the region of the tumour, the skin is also the seat of multiple nodular cancerous disseminations, then the whole or nearly the whole skin over the mamma must be removed, since, in addition to the palpable nodules the *nitric acid method* shows that there are other disseminations beyond them which are too small to be recognised by the most careful clinical examination. Professor Watson Cheyne[1] has shown the great value of grafting skin upon the pectoral muscle at the time of the operation when the wound cannot be closed. In one of his cases, in which the gap measured 8 by 6½ inches, the whole wound was soundly healed within a month. If the tumour, as is so frequently the case, be adherent to the pectoral fascia, a large piece of the subjacent muscle should be removed, even although it should appear to be quite healthy. The neglect of this procedure results not only in the exposure of a part of the surface of the tumour on the "surgeon's cut-surface," but also in the likelihood of a few cancer cells being left behind on or between the superficial fasciculi of the pectoral muscle.

When the pectoral muscle is obviously invaded by the tumour-mass, and by nodular disseminations in the vicinity, the prognosis will be most unfavourable. Heidenhain points out that the contractions of the muscle favour the spread of the cancer cells along the lymphatics, and recommends that the entire muscle be removed, but this appears to me to be unnecessarily radical.

Lastly, it will be gathered from what has been said regarding the pathology of recurrence, that a knife which has once cut into cancerous tissue should not be used again in the same operation.

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[1] *Lancet*, 4th July 1891.

V.—ON THAT FORM OF PAINFUL MENSTRUATION CALLED FUNCTIONAL, WITH SUGGESTIONS AS TO TREATMENT.

By James Oliver, M.D., F.R.S. (Edin.), F.L.S.

In many cases the pain complained of in association with that increased determination of blood to the genital tract which takes place correlatively with menstruation, is due to some decided organic change, inflammatory or otherwise, which has developed in or around the organs of generation. In such the clinical history usually points to the existence of some gross lesion in the pelvis, which can, as a rule, be readily detected by physical examination. The following is a fairly typical case belonging to the inflammatory variety:—

Daisy D., æt. 25, and married five years, has never been pregnant. The menstrual discharge appeared when the patient was 10 years old, and thereafter it recurred regularly every month without pain or discomfort until two years ago. For two years now she has suffered pain not only during the continuance of the catamenial discharge, but for four hours prior to its appearance. The pain, which is distressing, is referred sometimes to the right, and sometimes to the left iliac region, as well as to the lower portion of the back. For two years she has also complained of pain during coitus, and this pain, which is usually most intense immediately after each menstruation, continues invariably for a few minutes after connexion.

Physical Signs.—The cervix is located towards the left side of the pelvis. The anterior lip is applied to the anterior wall of the vagina, and the os looks downwards. The fundus uteri, which is slightly fixed, is felt posteriorly in Douglas's pouch. To the left of the uterus, and running from its left horn, is felt a small annulated swelling, which is the Fallopian tube thickened and adherent. On the right side is felt the ovary enlarged, tender to the touch, and also adherent. The existence of these physical signs was verified by abdominal exploration, this operation being performed for the purpose of removing, if possible, the tubes and ovaries, which were evidently diseased and involved in adhesions. It was found, however, that neither tube nor ovary could be removed with anything like success and a probability of ultimate benefit. The abdomen was consequently closed without a single adhesion practically having been disturbed. For many months, nevertheless, after this altogether unsatisfactory operation, no pelvic pain nor discomfort was experienced either in association with menstruation or during cohabitation. I am unable to offer any feasible explanation regarding the manner in which these changes which determined this immunity could have been induced. If an ovary, a tube, or a portion even of either of these structures had been removed, the temptation would, of course, have been strong to attribute the good result which was obtained to the removal of such.

This and many other similar facts tend only to prove how ignorant we are of the mode of action of any one of the multifarious influences to which from time to time the human body may be exposed, and ought to teach us at least to guard against the promulgation of dogmas which too frequently cannot be substantiated.

In some cases, again, dysmenorrhœa develops when a fibroid is beginning to grow in the muscular tissue of the uterus. "If," says Duncan, "you find an elderly menstruating woman having persistent dysmenorrhœa, you should suspect that there is some growth of this nature going on, and you will frequently find it verified in the further history of the case."[1]

It is not, however, my intention to deal at present with this—the organic—class of case, but with that obscure group in which pain more or less severe is complained of in association with, and generally has existed ever since the establishment of menstruation, and in which the most careful examination of the pelvic organs fails to detect in or around them any evidence of change of a pathological character. The organs of generation appear, in fact, to be perfectly healthy, but with each periodic recurrence of that functional activity, the manifestation of which is in some respects peculiar to the human female, pain is experienced because of some abnormal molecular or chemical change taking place at this time in one or more of those structures which are concerned in the process of reproduction, or in consequence, it may be, of some correlative disturbance occurring in other neighbouring organs.

Although we are still unable to demonstrate the true character of these changes, and are accustomed to speak of them as functional, they are, nevertheless, as much pathological as those of a grosser and more tangible nature.

In some cases there may be undoubted evidence of a more or less imperfect development of the organs of generation. Pain is not, however, a necessary association of arrested growth, for it happens commonly when such is noted, that although the evolution of functional activity may be badly displayed, it is nevertheless enacted without pain.

In spite of the recent rapid advances in science, some gynæcologists still appear to believe that there is a regulation shape and size of uterus, and that unless this organ has, so to speak, been developed in the special mould of which they possess a mental impression, it is impossible that it can adequately fulfil its functions without the intervention of art. Every day variations are observed in the shape of the human body, in the size and form of the head, and in the proportion of parts.

"The faces of the Calmucks," says Buffon, "are so flat and so broad that their eyes, which are uncommonly small, are from 5 to 6 inches asunder, and their noses are so flat that two holes are barely perceivable instead of nostrils." The organs of generation, too, furnish remarkable varieties. In the case of the Hottentot women, the labia minora are sometimes enormously elongated, and this; which I am well aware was at one time considered to be a product of art, is in reality a natural variety of conformation. In improved breeds of cattle the lungs and liver, when compared with those possessed by animals having perfect liberty, are found to be considerably reduced in size, and the general shape of the body is altered by the reduction of these organs. In the animal kingdom there is, in fact, abundant proof that the size and shape of every organ or structure of the body may vary without the function of such being thereby necessarily impaired or disturbed. In the case of the uterus, however, it is tacitly alleged by some, at least, that no variation of this organ can be allowed, and that its well-devised configuration must be maintained. If the cervix happens to be a little more pointed, or its orifice appears to be less wide than usual, it is more than probable that some, if not all, the co-associated pelvic symptoms will, without further investigation or consideration, be attributed to the existence of either of these two conditions. For this reason we learn that "conical" cervix and "stenosis" of the os are causes of sterility and of derangement of the menstrual process. My firm conviction is that the time has come when these two terms should be discarded, as the conditions *per se* which they represent are of no great moment. Matthews Duncan has well said, in referring to the "obstructive" form of dysmenorrhœa, "The smallest passage described—'pin point os uteri,' as it is called—is quite enough to allow a hundred times as much blood to pass as there is any occasion for, or as offers to pass."

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[1] *Clinical Lectures*, p. 135.

Menstruation is a periodic phenomenon, and various opinions are held regarding the manner in which the function is called into existence. I cannot entertain the hypothesis that the ripening and bursting of a Graafian follicle is the cause of menstruation, although this theory appears to be generally accepted. When, however, ovulation and menstruation result cotaneously, it is my opinion that these two changes of state are produced by the same cause. It is nevertheless true that these two processes may, and occasionally do actually occur independently of each other.

In the human female, at least, the bursting of a Graafian follicle is occasioned, not simply by the maturation of the contained ovum, for this body, if otherwise unaided, is too small to produce this result, and the escape of an ovum is only rendered possible by the occurrence of an effusion of blood or serum into the ovisac, whereby the internal pressure is so augmented that rupture invariably ensues. It sometimes happens, however, that ova which have arrived at maturity are detained in the ovisac, and are never extruded, in consequence of some failure on the part of the nervous mechanism to produce that amount of change in state which is necessary for the completion of the process.

Menstruation is, in my opinion, determined by a spontaneous evolution of nerve energy, by a liberation of motion which results from chemical changes taking place in certain nerve vesicles, and these changes, favoured or retarded by various external circumstances, take in any given case a greater or less length of time for their completion. Life itself is, in fact, an adaptation to circumstances, and there is a constant relationship between the organism and its surroundings.

We know that the age at which the menstrual discharge first makes its appearance varies over all the earth. It varies according to the temperature of the climate even in the same races of people, according to the quantity and quality of the food taken, according to the development of the moral faculties, and, finally, according to the nature of the temperament.

In all organised bodies the activity of the vital powers is greatly augmented by heat. For this reason the catamenial discharge appears at a much earlier age in hot than in cold countries. In Arabia and Persia, for example, the girls usually begin to menstruate at the age of nine or ten, whereas in the northern parts of Germany the external manifestation of this function is seldom noted before the fifteenth year.

In England and other countries also the inter-menstrual epoch varies greatly. It may be represented by days or weeks, and in a few cases even the menstrual discharge recurs so infrequently that this period is represented by months. I am informed that in Paraguay and the eastern parts of South America the women of the savage nations seldom menstruate, and when they do the discharge is usually extremely scanty. In all the races of man, too, the amount of this periodical discharge varies in different individuals according to their constitution and manner of living. These and other similar facts show that the function undoubtedly results from intrinsic changes which are dependent largely upon external circumstances.

In the vegetal kingdom periodic phenomena are frequently displayed. There are the so-called sleep moments of leaves and flowers. In the case of the sunflower, for example, the large foliage leaves of this plant become bent downwards towards evening, so that the lower leaves are partially covered by those above them,—the arrangement, in fact, resembling very closely that of tiles on a roof. In all plants the leaves do not, however, assume the same position during sleep. Sometimes they fold themselves upwards. We witness also a similar change of state in the case of flowers: this structure, opening at sunrise, begins gradually to close towards sunset.

Periodic alternations of vegetative activity and rest are also noted in association with plant life. By altering the surroundings, however, we have found it possible to shorten the duration of the rest period. It is astonishing, too, by what obscure and apparently slight causes physico-chemical changes of a decided character may be induced. In the case of some tubers and bulbs we remark that the period of rest may be shortened by a not too excessive drying up. Speaking of the causes of variability, Darwin[1] says, "The Lalande variety of the walnut tree leafs between April 20th and May 15th, and its seedlings invariably inherit the same habit, whilst other varieties of the walnut leaf in June. Now, if seedlings raised from the May leafing Lalande variety are grafted on another May leafing variety, though both stock and graft have the same early habit of leafing, yet the seedlings leaf at various times, even as late as the 5th of June." These and other similar manifestations are undoubtedly due to some molecular or chemical change which has taken place in the structures exhibiting them, and tend to prove how mysteriously very decided alterations may be produced in consequence of the actions and reactions which may result from the many influences to which every living thing is or may be exposed.

We know, too, that the chemical qualities, odours, and tissues of plants and animals vary according to the external conditions of the organism. The root of the *Aconitum napellus*, which is so poisonous, becomes innocuous when grown in a frigid climate. Humboldt[2] remarks that white men "born in the torrid zone walk barefoot with impunity in the same apartment where a European recently landed is exposed to the attacks of the *pulex penetrans*." This insect appears, therefore, to be able to distinguish some difference between the blood and tissues of the European and those of the white man born in the country where this parasite abounds. Liebig tells us that the blood of men with different complexions, though inhabiting the same country, emits a different odour.

Man, no doubt, modifies in a very marked degree the action that the elements exercise upon him; still, his constitution, which, to begin with, is unknowable, is undoubtedly affected by the food, the mode of life, and the surroundings generally. No one would believe that the physical constitution of the Esquimaux, whose food is chiefly fatty, and whose abode is decidedly ungenial, could be otherwise than very different to that of the African, who lives under a vertical sun. Now, we know that the amount of change which may be produced in consequence of the action of any one agency or group of agencies varies according to the constitution of the individual. Individuals brought up under exactly the same conditions are not subjected in reality to the same influences. The constitutions, to begin with, are not alike, and change therefore results. Two beings may live upon the same food, but both will not derive the same amount and the same degree of nourishment from such: one will appropriate more of one compound or group of chemical agents than the other. It is, moreover, impossible for two individuals to live exactly the same sort of life.

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[1] *Animals and Plants under Domestication*, vol. ii. p. 259.

[2] *Personal Narrative*, English translation, vol. v. p. 101.

In the case of the women of savage peoples, it is, as every one will readily recognise, almost impossible to obtain any definite information regarding the probable existence or absence of constitutional disturbance in association with menstruation. The function appears, however, to be evolved without producing either pain or discomfort. Under ordinary circumstances, we ought not to be conscious of physiological changes going on in the viscera. It is, therefore, to the social life that I attribute those changes of state which, taking place correlatively with menstruation, produce pain. The majority of civilized women suffer more or less during the evolution of this phenomenon; but between that state in which the function is performed without the individual being conscious of any active variation, and that in which the most intense pain is experienced, there exists every degree of sensation. We glide, in fact, insensibly from one state into the other.

It is well known that animals and plants in a wild or natural state are much less likely to deviate from the normal condition than animals and plants that are being domesticated. In the case of man, too, we have abundant proof that the more closely we adhere to the dictates of Nature the less likely are the various functions of the body to be disturbed, whereas the more we thwart or disregard her laws the more likely we are to suffer for our disobedience. "The health of man," says Buffon, "is more precarious than that of any other animal, he is indisposed more frequently and for a greater length of time, and dies at all ages, while brutes travel through life with an even and steady pace. This difference seems to proceed from two causes, which, though widely distinct, contribute to the same effect. The first is the unruliness of our internal material sense; the passions have an influence on health, and disorder the principles which animate us. Almost all mankind lead a life of timidity or contention, and the greatest part die of chagrin. The second is the imperfection of those of our senses which have an affinity with the appetites. Brute animals have a better perception of what is suitable to their nature; they are not liable to deception in the choice of their food; they are not guilty of excess in their pleasures, and, guided solely by a sense of their present wants, they satisfy these without seeking new methods of gratification. As for man, independent of his propensity to excess, independent of that ardour with which he endeavours to destroy himself by endeavouring to force Nature, he hardly knows how to distinguish the effect of this or that nourishment, he disdains simple food and prefers artificial dishes, because his taste is depraved, and because from being a sense of pleasure he has rendered it an organ of debauchery, which is never gratified but when it is irritated."

Among the inferior races of man everything happens naturally as among animals. The life which the women of savage people lead is very different to that of civilized women. Now we know that the organs of generation are exceedingly sensitive, and that molecular and chemical changes take place in their tissues in a most unaccountable manner from the most trivial causes. In the case of civilized women the evolution of menstruation is affected in a very decided manner by the habits of society. The physical and moral life of women in large cities is, generally speaking, very different to that of the women of the peasantry. The theatre, the dance, and a variety of other diversions which are much more likely to be indulged in by the inhabitants of large than small towns and country districts, tend undoubtedly to excite the passions and disturb the functions of the reproductive organs. Amongst the women of all classes of society there are, however, common influences at work which tend more or less, according to circumstances, to disturb the various functions of the body, and directly or indirectly the molecular and chemical states of the generative organs are especially apt to be disturbed. In civilized countries the majority of women lead a sedentary life, and this, no doubt, plays an active part in the production of physico-chemical change, as a fair amount of exercise is essential for the maintenance of the well-being of the body. The dress, too, is usually so fashioned than the freedom of many of the organs of the body is crippled, and their vascular state correlatively disturbed. The functions of the lower bowel are especially liable to be deranged, and constipation generally results. Now, human fæces, even when quite healthy, contain active poisons, and Sir Andrew Clark,[1] in referring to this question in a paper read before the Medical Society of London, Nov. 14th, 1887, says, "It is impossible to doubt that poisonous alkaloids are formed in the alimentary canal, that when excretion is seriously diminished they must be in some degree absorbed, and that mixing with the blood and entering the tissues, they must produce some sort of injurious effects determined by the rate of absorption and the amount absorbed." It is more than probable that in many cases these poisons are attracted towards the reproductive organs, especially if the body is impregnated with them at or about the time when the functions of these organs are being called into existence. It is well known that whilst the growth of the individual is proceeding rapidly, the reproductive organs remain inactive, and that when this antagonism becomes reversed, physico-chemical changes of a prejudicial character are rapidly produced in these latter structures. The female should be especially well cared for during this crisis of transition, for I am convinced that if more attention were paid about this time to the mode of life, generally of the girl, there would be less suffering at or about the time of menstruation, and this function would be evolved more healthily than it now is.

Clinical observation teaches us that, prior to and during menstruation there is an increased determination of blood to the whole genital tract, and that a similar change in the vascular state of this apparatus takes place during the sexual orgasm. In both cases the amount so directed is regulated by the nervous system, but the manner in which the vascular excitation is induced is dissimilar, and I am inclined to think that the two sets of vessels are distinct, and that both may even be affected at the same time. The vascular change associated with menstruation is spontaneously and periodically evoked, whilst the other is largely the result of emotional disturbance.

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[1] On "Chlorotic Anæmia."

It is evident, however, that although an increased supply of blood to the organs of generation is undoubtedly favourable for, it is not necessarily the cause of menstruation. The phenomenon is, in fact, purely the result of a central nerve disturbance which is transmitted to the representative structures by fibres belonging to the great sympathetic.

Now, our knowledge of the sympathetic is very imperfect. The structure of its nerve fibres, however, is such that when molecular change takes place in one fibre the disturbance readily spreads to and affects other fibres belonging to this system. The sympathetic serves to establish relations among the viscera, and the fulfilment of this function is favoured by the absence of a medullary sheath, for this structure when present, as in the case of the majority of the spinal nerves, insures a more or less perfect insulation of the fibres. It is, therefore, more than probable that when the periodic explosions which induce menstruation take place in the uterine centre, the disengaged molecular motion is not only transmitted along the uterine nerves, but is in part propagated to other bundles, and more especially to those belonging to immediately adjacent structures. Clinical observation teaches us that the functions of the gut and bladder are frequently disturbed during the evolution of menstruation, and I consider that the only feasible explanation regarding the method of production of these changes is that which I have just offered.

The phenomena of pain are among the most obscure and intricate that we are called upon to deal with, and at no time, perhaps, do we appreciate the truth of this dogma so much as when we come to investigate the cause or causes of those changes which, resulting in association with menstruation, produce pain. The difficulty in studying this functional disorder of the reproductive organs is greatly increased by the fact that we are dealing with changes in a nervous system whose functions are very imperfectly known, and whose structure is such that when molecular variation has been induced the disturbance is not confined to the group of fibres first affected, but is propagated from bundle to bundle. For this reason the pain is generally diffuse, and is referred to the lower part of the abdomen. The majority of patients are unable to liken these pains to any known sensation, whilst some describe them as being tearing, grinding, and dragging in character. In the present state of our knowledge of this disorder, a differentiation of the pains is of no special value, as we are unable to attach any importance to their character in consequence of the very vague description which we, as a rule, receive of them.

What, however, we ask, are the states correlated with menstruation which yield pain?

1. It may be due directly to changes in the nervous apparatus.
2. It may be due to some want of harmony on the part of those vessels which ought to respond to the nerve change evoking the menstrual discharge.
3. It may be due to abnormal states of the reproductive organs themselves.
4. It may be due to disturbances correlatively taking place in other more remote organs, but more especially in the gut.

1. The pain may be due to some abnormal physical or chemical change in some portion of the nervous apparatus. This change may have taken place in the sensori-motor centre, in some portion of the nerve trunk, or of its peripheral expansion. Now, we know that the nerves of the sympathetic system differ in many respects from those of the cerebro-spinal system, and these differences tend only to increase our difficulty in investigating the phenomena of pain in connexion with menstruation. A very feeble current of electricity, for example, will excite the motor spinal nerve of a mammal. A sensory nerve is also capable of being excited by electricity, but the current required is much stronger than that needed to excite a motor nerve, and a still more powerful current must be employed to excite a bundle of the sympathetic. One observes, too, in the case of the sympathetic, that the nerves of this system do not respond immediately to the electrical excitation, and that the resulting molecular disturbance persists longer in this than in any other nerve structure after the excitation is withdrawn. It is impossible at the present time to affirm, but I am inclined to believe that these physico-chemical peculiarities of the sympathetic, revealed during electrical excitation, are in some degree related to the phenomena we are now discussing.

The disturbance producing the pain associated with menstruation appears, undoubtedly, to take place occasionally in the sensori-motor centre itself, and the pain so produced may be referred to the head or the lower part of the abdomen. In this case, when the patient suffers from headache no pain is experienced in the abdomen; and when the pain is referred to the abdomen, as a rule no headache is complained of. In consequence, however, of the close proximity of the uterine to the pneumogastric centre, the molecular disturbance originating in the uterine is apt to be radiated to the pneumogastric centre, and sickness results. The sickness being caused by change in the pneumogastric centre is usually a complication, no matter whether the patient complains of headache, or the pain is referred to the lower part of the abdomen.

It is well known that all pains which are referred to the peripheral expansion of a nerve are not necessarily due to change in these ultimate filaments, but that the cause of the pain may be located either in the nerve trunk or in the sensori-motor centre itself. In many cases of neuralgia no permanent benefit is derived from division of the nerve believed to be affected; and this fact indicates that in those cases, at least, in which this surgical procedure affords no relief, the change, whatever its nature, is located not in the peripheral expansions, but either in the trunk or the nerve centre. In many cases of epilepsy the fit is preceded by a sensory aura; and this sensation, which is referred to some portion of a limb or of the body, is central and not peripheral in its origin.

Regarding those states of nerve tissue which yield pain we know absolutely nothing. They are inconsistent with that due balance of the functions constituting health. It is nevertheless true that the majority of the women who suffer most during the evolution of menstruation are to all appearances—except at this period—healthy and full of vigour. Comparatively speaking, only a very small number of women who suffer from chlorosis, anæmia, and other debilitating diseases, complain of pain in association with menstruation. I am, however, disposed to believe that in the majority of cases, at least, those states, whatever they may be, which yield this periodic pain are in consequence of our civilized life rendered exceedingly liable to be evoked when that spontaneous nerve explosion which determines menstruation exerts its influence for the first time, and that when once induced they are apt not only to be reproduced, but gradually augmented each time the original excitation is called into existence.

The "axis cylinder," or essential nerve thread, does not merely transmit molecular motion; like the vesicular matter it possesses the power of giving out molecular motion. The progressive variation, therefore, which is frequently noted regarding painful menstruation, does not necessarily indicate that the change is central.

I have seen cases in which the pain complained of correlatively with menstruation has been acquired during married life in consequence of the patient using a cold vaginal douche, medicated or non-medicated, immediately after coitus for the prevention of conception. Pain so produced I consider is due to change in the nerve filaments. When a cold vaginal injection is used immediately after sexual intercourse, the genital organs are acted upon by an unusual influence, and it is not astonishing that important and sometimes serious changes in these structures result occasionally from this ill-advised practice, interfering as it must with the evolution of a physiological process. Nerve tissue, we know, is exceedingly liable to have its physico-chemical state altered when it is suddenly chilled. Facial palsy, for example, is thus frequently induced.

2. The pain may be due to a want of harmonious response on the

part of the vessels to the excitation inducing menstruation. The structural arrangement of the sympathetic is such that any irregular action on the part of the vessels is readily appreciated, and this, according to its nature and amount, will produce either simple discomfort or actual pain. Du Bois-Raymond, who suffered much from megrim, believed that this form of headache was due to a tetanus in the muscular walls of the vessels of the affected part of the head. In many cases I believe the pain associated with menstruation is produced by the blood being forcibly driven against constricted portions of the vessels, and this view is favoured by the fact that in such relief is obtained by the application of warmth to the abdomen.

We know that the calibre of the small vessels distributed throughout the body varies from time to time, now contracting and now dilating, and this apart from any evident cause. Now, the vaso-motor mechanism of the kidney is readily affected by changes in the chemical composition of the blood; and considering that the reproductive organs are developed from the same primordial structure, it is highly probable that the vaso-motor mechanism of the latter organs is equally readily disturbed.

It frequently happens that mental depression is noted in association with painful menstruation, and by some these two symptoms might be attributed to an excess of uric acid in the blood. I am, however, of opinion that uric acid plays no very important part in the production either of pain or mental depression during the evolution of menstruation. A most careful examination of the urine shows that the quantity and quality of this excretion varies greatly in any given case from time to time. The pain is not apparently affected by the weather; it is neither better nor worse during the hot summer months; neither does it vary much according to the condition of the urine. The pain appears to be of the same character and amount whether the quantity of uric acid eliminated by the kidneys is, comparatively speaking, increased or diminished during menstruation. The vaso-motor spasm may last but a few hours, and the pain thus produced subsides as soon as this irregular action of the vessels passes off.

3. The pain complained of in association with menstruation may be due to some abnormal physico-chemical changes taking place during the evolution of this phenomenon in the ovaries, the Fallopian tubes, and the uterus, or it may be in one only of these structures. The menstrual discharge is excreted chiefly by the uterine glands, but it is more than probable that it is in part excreted also by those more obscure glands which enter into the formation of the Fallopian tube. Under ordinary circumstances this excretion is fluid. In many cases, however, and especially in those in which pain is experienced during the process, the discharge becomes more or less lumpy, and although we are at present unable to attribute this alteration in character to a definite cause, it is nevertheless due

to some change in the chemical constitution of the fluid excreted, and this change may be due to an abnormal state either of the excreting structures or of the nerves governing the function. It is undoubtedly true that the blood is the source of all the liquids which are secreted or excreted by the organism. I cannot, however, entertain the hypothesis that the catamenial discharge is unaltered blood poured out by vessels purposely fractured. Practically we know nothing regarding the nature or chemistry of this excretion, although I am well aware that some authorities say it is arterial blood; others, again, that it is venous; whilst a third group affirm that it resembles the blood in capillaries. These are purely random statements, founded upon no facts. In individual cases the character and composition of the menstrual discharge varies from time to time, for its odour and appearance is not always the same. Sometimes it is greenish in colour, and contains no colouring matter which has been derived directly from the blood. Sometimes, however, the menstrual excretion is mixed more or less decidedly with blood which has been poured out by vessels which have actually ruptured in consequence of the increased determination of blood to the genital tracts, which takes place correlatively with the evolution of this phenomenon. This is more especially noted when the uterus is the seat of some fibroid change. Under similar circumstances, and for a like reason, hæmorrhage occasionally takes place from the interior of the uterus during the sexual orgasm. Blood-clots may therefore form, and be expelled during menstruation, but the pain so produced is very different to that which we are now discussing. It is purposive, and is usually capable of being described. It is never very severe, even in those cases in which the uterus is at the same time attempting to rid itself of a growth which is becoming, or has already become, polypoid in character. It is a pain which ceases as soon as the uterus rids itself of the offending body, or when the muscular tissue of this organ has become exhausted. On the other hand, the functional pain which we are now considering is most intense, and continues, as a rule, without abatement for four or more hours, and when it ceases is seldom again experienced during that menstrual epoch.

The tonic state of the uterus, we know, varies from time to time, according as the muscular tissue of this organ is more or less contracted or more or less relaxed. These changes are readily detected during pregnancy, and going on in the unimpregnated uterus they are undoubtedly augmented during the periods of heightened functional activity. Now, undue contraction of this as of any other muscular organ of the body will produce pain or discomfort; it is, therefore, more than probable that a cramp-like condition of the uterus induced during menstruation is a cause of pain in association with the evolution of this phenomenon. We are ignorant of the cause or causes of this clonic spasm, but when it takes place sickness is invariably complained of coetaneously.

4. The pain complained of in association with menstruation is often aggravated by, if not sometimes solely dependent upon changes taking place in the gastro-intestinal tract. Formerly it was alleged that in some cases of dysmenorrhœa more or less decided relief was obtained by the administration of large doses of liquor ammoniæ acetatis, and I am inclined to attribute the good results so obtained to the presence of free ammonia in the gut. Apart from its stimulating influence, this free ammonia would tend to check acid fermentation, and so prove beneficial. Many women suffer more or less from diarrhœa during menstruation,—a fact which shows that the functions of the bowel are exceedingly liable to be disturbed in consequence of changes taking place in the great sympathetic at this time. In the majority of these cases, however, it is noteworthy that little or no pain is complained of either prior to or during menstruation. The extra nerve force, it would appear, instead of being pent up, expends itself on the glandular and muscular tissues of the intestine—a safety valve-like action is, in fact, induced. By observing carefully the method of Nature we may imitate her. In many cases of dysmenorrhœa good results are obtained by administering a saline aperient immediately before an expected period. The active changes going on in the intestine withdraw a certain amount of nerve energy from the uterus, and correlatively modify the disturbance which otherwise would have resulted. In such cases the saline aperient acts like a counter-irritant. Many facts substantiate the theory that frequently the pain associated with menstruation is due to disturbance of the gastro-intestinal tract. Women, for example, who are the subjects of hernia, and who also suffer much during menstruation, frequently complain of severe pain in the hernial protrusion with each recurrence of the catamenial discharge. It is impossible to say what is the actual cause of this pain which is referred to the gut. It may be due to some variation in the state of the nerve filaments, or it may be caused by fermentative changes taking place for some reason or other in the contents of the intestine.

In this account of functional dysmenorrhœa I take no notice of the so-called membranous dysmenorrhœa, for in this group of cases there is undoubted evidence of organic change; but whether the pain and the membranous formation are dependent upon the same cause I shall not at present discuss, but shall reserve these questions for future consideration.

Treatment.—In no class of case, in my opinion, has the treatment been so ill-directed, and consequently so inefficacious, as in functional dysmenorrhœa. Hitherto contented with empiricism, little or no attempt has been made to investigate the cause or causes of this very common association. By a careful study of the many simple cases which come under observation, we hope eventually to be able to direct our treatment with precision. Now, seeing that it is to our social life we attribute those changes which are so liable to produce pain during the evolution of menstruation, we must direct our attention primarily to those influences which we know disturb readily the well-being of the body. The food should be as plain and simple as possible. A fair amount of exercise should be recommended, and the attempt should be made to establish the habit of emptying the lower bowel of its contents daily, and preferably in the morning.

In those cases in which there is pain with sickness, no matter whether the disturbance is central or in the organs themselves, I find it advantageous to administer a large dose of Bromide (especially the three, Pot., Sod., and Ammon.) every night at bed-time for one week midway between the periods, and 5 grains of Antipyrin every hour (or a less dose, according to the age and condition of the patient), beginning as soon as the pain or discomfort which augurs the menstrual process is experienced, and continued, if necessary, until six doses are taken. In the majority of cases Phenazonum tends to lessen the amount of the menstrual discharge; and this drug is seldom of benefit in those cases in which there is prior to its administration a scanty flow. When the discharge is scanty, and especially when the pain appears to be due to vascular spasm, the patient should be recommended to take each night for six nights before an expected period a hot bath, and thereafter a mixture containing the three Bromides, the dose varying from 10 to 20 grs. of each. If the pain appears to be due to derangement of the gastro-intestinal tract, a mixture containing either Chloride of Calcium or Hypophosphite of Lime should be administered during the intermenstrual epoch, and 5 grs. of Phenazonum every hour (until 30 grs. are taken) as soon as the patient begins to experience the pain usually complained of during menstruation.

In a few cases good results are obtained by dilating the cervix uteri, but this treatment should not be adopted, especially in the case of young unmarried women, until other remedies have been well tried for at least a year or eighteen months. My opinion is that the good results obtained by dilatation are decidedly overrated, and that, although marked relief may be noted during the period immediately succeeding the dilatation permanent benefit results in a very small percentage of the cases operated upon. I am frequently consulted by patients who have been subjected to dilatation and incision of the cervix, and in the majority of these cases the patients allege that their distress has increased since the operation. Finally, let me say that we cannot too strongly condemn the use of Opium or of hot alcoholic drinks in cases of dysmenorrhœa. The latter is a common household remedy, and although it relieves at first, it tends in the long-run to aggravate the disease, and besides, it is apt to engender a habit which, once well established, cannot readily be interrupted.

VI.—STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY.

II. Clinical Notes of Four Cases, and Description of Two Specimens of General Dropsy of the Fœtus.

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(*Read before the Obstetrical Society of Edinburgh*, 6*th February* 1892.)

During the last few years four cases of general dropsy of the fœtus have come under my notice; in two of these cases I was fortunate enough to obtain the specimens for dissection, but in the other two I was only able to get their clinical history. Three of the fœtuses were the offspring of the same patient, and the fourth was the child of her sister-in-law. I am indebted to Dr Freeland of Broxburn for the specimens and for the clinical notes of the cases; he has had the patients who gave birth to these diseased infants under his care for several years, and has very kindly supplied me with all the information I required. The first fœtus (Specimen A) was examined by the frozen sectional method for the special purpose of demonstrating the position of the dropsical fluid and of the organs; drawings of these sections were shown to the Obstetrical Society of Edinburgh in 1887. The second fœtus (Specimen B) was investigated by simple dissection, and the tissues were specially examined with a view to demonstrating their microscopic characters.

Definition of General Dropsy of the Fœtus.—It is impossible to frame a satisfactory definition of this fœtal malady, for the cases which have been recorded by various authors present differences so wide as to suggest that we are here dealing, not with a pathological entity, but with a group of symptoms common to several different morbid conditions. It may, however, for convenience be defined as a rare condition of the fœtus, characterized by general anasarca, by the presence of fluid effusions in the peritoneal, pleural, and pericardial sacs, and usually by œdema of the placenta; and resulting in the death of the fœtus or infant before, during, or immediately after birth. It is to be distinguished from such conditions as ascites or peritonitis of the fœtus, œdema neonatorum, congenital elephantiasis, and fœtal syphilis. I believe that it is also to be differentiated from the condition known as hydrops sanguinolentus fœtus. At the same time, I believe that some of the specimens which have been described by authors as examples of fœtal peritonitis and hydrops sanguinolentus have really been instances of general fœtal dropsy in infants that have died in utero.

Synonyms.—Various names have been given to this group of symptoms. *General dropsy of the fœtus* is perhaps that most commonly used: the "*hydropisie généralisée du fœtus*" of the French writers, and the "*Haut und allgemeine Wassersucht*" of the German authors. It has also been called *general fœtal œdema, fœtal ascites and anasarca, dropsy and gelatinous anasarca of the fœtus, serous effusions in the fœtus,* and *universal dropsy of the fœtus* (hydrops universalis fœtus).

Historical Note.—The literature of the subject will be detailed in a later part of this paper; but a *résumé* of the history of the disease may here be given. It has been supposed by some that Hippocrates was speaking of a case when he described the birth of a fleshy fœtus (fœtus carnosus); but it was not till the seventeenth century was reached that records of undoubted cases appeared. They were those of Louyse Bourgeois, Plater, Severin, Seeger, and Dorstenius. In the eighteenth century the condition was discussed by Duettel and by Lavaterus; Lospichlerus and De la Motte each described a case; Schurig noted one case of his own, and gathered together those related by other authors; and Bianchi of Venice described it in a case of triplets. In the early part of the present century F. B. Osiander, Carus, Lamouroux, Billard, Seulen, and Hufeland reported cases; Graetzer and Hohl of Halle described the disease in their interesting works on fœtal maladies; and Cruveilhier gave notes of two cases which occurred at the Paris Maternity. Among the cases of fœtal peritonitis recorded by Sir J. Y. Simpson were one or two which were possibly examples of general fœtal dropsy; and this remark applies also to West's cases, and to some of those described by other authors (*e.g.*, Pollnow) under the name of hydrops sanguinolentus fœtus. During the last forty years there have been several important contributions to the literature of this subject: cases were described by Weber, Ferris, Keiller, Thomas, Tamm, Goldmann, Walker, Clay, Burton, Betschler, and Ritter between the years 1850 and 1870, and of these the two cases fully detailed by Betschler were perhaps the most valuable; Joulin and Herrgott considered the condition among the causes of delayed labour; in the years 1875-7 appeared a series of cases in the London Obstetrical Society's *Transactions*, narrated by Protheroe Smith, Lawson Tait, Snow Beck, and John Bassett; Schütz, Klebs, Spiegelberg, Jackesch, Strauch, Braun, Habit, Nieberding, Ahlfeld, Behm, Ruge, Hönck, Sänger, Küstner, Lohlein, Cohn, and Fuhr have written upon it in Germany; Angus Macdonald and A. R. Simpson showed specimens of it to the Edinburgh Obstetrical Society, and I exhibited to the same Society the sections of my first case in the year 1887; Chiara, Pinzani, and Raineri have contributed cases from Italy; and Taruffi of Bologna has discussed the condition in his large compendium of Teratology; in some recent text-books on Midwifery it has been referred to (*e.g.*, *Tarnier* and *Budin*, *American System of Obstetrics*, etc.); Dareste has thrown some light upon its causation in his teratogenic studies on the hen's egg; and Smith and Birmingham have described a case of it in which the thoracic duct was absent. Longaker, Osler, and Gueniot have also noted cases.

Varieties.—I have, for etiological reasons to be afterwards detailed, divided the cases of general fœtal dropsy into two primary groups, in one of which the disease occurs in the single fœtus, and in the other in one of twins or of triplets. The further subdivision of these groups is, however, necessary, and will be referred to again when we have considered the pathogenesis of the state.

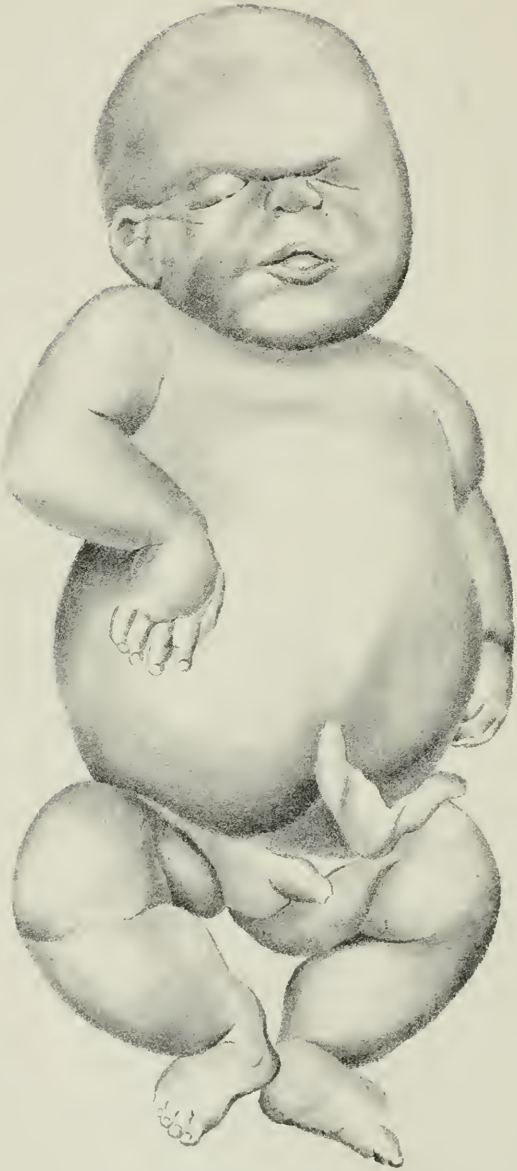
Frequency.—There can be no doubt but that general fœtal dropsy is an extremely rare condition. I have been able to collect together the records of little more than sixty cases. To these must be added the cases of general dropsy in malformed twin-fœtuses which are found scattered throughout medical literature, and in which the dropsical state has not been specially emphasized by the writers; but even these are few in number.

DESCRIPTION OF CASES AND SPECIMENS.

The first specimen of general fœtal dropsy which came into my hands for examination was kindly given to me by Professor Simpson, to whom it had been sent by Dr Freeland in March 1887. Since that year Dr Freeland's patient has given birth to two other dropsical fœtuses, and her sister-in-law has given birth to one; of these three specimens one has come into my possession.

Obstetrical and Clinical History of Dr Freeland's Cases.—Mrs A., now 37 years of age, has had an interesting obstetrical history, of which the following are the chief details. Her two first pregnancies resulted in the birth of full-time healthy infants, who are now alive and healthy. Her third, fourth, fifth, sixth, and seventh pregnancies terminated prematurely between the sixth and seventh month; the infants were still-born on all these occasions, but no autopsy was made upon any of them. The eighth pregnancy also came to an end between the sixth and seventh month, and it was noted that the placenta was "extensively diseased." During the ninth gestation the patient was put upon a course of chlorate of potash, in the hope of enabling her to carry to the full term a living child; but between the eighth and ninth months premature labour set in, and a male infant with general dropsy was born. This fœtus (Specimen A) was examined by me by the frozen sectional method. The labour had been easy and rapid, for the woman had been delivered before Dr Freeland arrived at the house. There had been hydramnios in a very marked degree. The infant's heart beat for a few minutes after birth, but there was no attempt at respiration. The placenta was large, pale, and œdematous. The puerperium was quite normal, and there was not, and had not been during pregnancy, any albuminuria. Soon after this a tenth pregnancy occurred, and this resulted in the birth of a full-time dropsical infant that lived about twenty minutes. Dr Freeland was not present at the confinement, and did not see the infant; but he was told by the mother that it was exactly similar to the one above mentioned. "It was," she said, "a fine, well-formed child, but full of water." Her next pregnancy came to an abrupt conclusion at the seventh month; the fœtus was dead, with the skin peeling. The twelfth pregnancy terminated on December 13th, 1891, in the birth of a six months' dropsical fœtus, with a placenta exactly similar to that in the eighth pregnancy. This fœtus is named hereafter Specimen B. Dr Freeland was sent for early in the morning of December 13th, when he found that Mrs A. had had an extensive hæmorrhage, and had all but fainted. Fœtal movements had been felt for two or three weeks previously, and also on the previous evening. The vagina was plugged, as there were no labour pains; six hours later labour set in, and when the plug was removed the os was found to be about the size of a penny. Dr Freeland soon after ruptured the membranes, and a foot (the right) came down; traction on this caused a tearing of the tissues at the ankle. Uterine pains and hæmorrhage now ceased, but recommenced seven hours later. The breech now passed easily through the os, and a female fœtus was soon completely born. There was marked hydramnios. No difficulty was experienced in removing the placenta, but on lifting it by the cord the latter broke across. The puerperium was normal. She had last menstruated on June 6th, and her pregnancy, therefore, had advanced as far as the sixth month.

Both the patient and her husband were very anæmic in appearance; but she had always, she said, enjoyed good health. In her pregnancies it was only after quickening had occurred that she began to feel swollen, uncomfortable, and as if there was great pressure about the lower part of the right side of the abdomen. There was no evidence of renal disease. The question of syphilis was carefully inquired into, but absolutely no history or sign of that disease could be found either in the woman or her husband. Further, neither her mother nor her sister had ever had still-born infants or abortions. Dr Freeland, however, accidentally discovered the following curious circumstance:—The patient's brother, who had exactly the same waxy anæmic look, was married to a thoroughly healthy woman. She had been six times pregnant by him, and each gestation had ended in an abortion. Her seventh pregnancy went to the full term, when she was delivered of a still-born dropsical infant. Dr Freeland was so much struck by the resemblance between this child and that of Mrs A. that he remarked upon the circumstance, and then, for the first time, learned that the women were sisters-in-law. Unfortunately this second patient soon after left the district, and her history was not obtainable; but it was heard that she had had an eighth pregnancy, which had also terminated in the birth of a still-born infant, whether dropsical or not is unknown. There were no alcoholic



General Dropsy of Fœtus, Case A ($\frac{2}{5}$ Nat. Size).

tendencies in Mrs A.'s case, but there were such in that of her sister-in-law.

Morbid Anatomy of Specimen A.

A. *External Appearances.*

In the case of this first specimen, I had a water-colour sketch made of it before placing it in the freezing mixture. This was done in order to bring out the external appearances which it presented at that time (Plate I.) In this sketch the swollen state of the abdomen and the general condition of anasarca are well represented, as are also the œdematous, glossy, and pinkish appearance of the skin all over the body, and the deepening of the grooves at the flexures of the limbs. The œdematous state of the subcutaneous tissue of the forehead and eyelids has reduced the eyes to mere slits, and has caused a deep groove above the root of the nose. The mouth is seen to be partly open, and the tongue protrudes to a slight extent. The great œdema of the hands and feet has given to these parts a swollen, almost deformed appearance. The anasarca, whilst general over the whole body, is seen to be specially well-marked in the regions of the thorax, abdomen, scrotum, and thighs. The umbilical cord also is swollen and œdematous. The bones and sutures of the cranium could hardly be felt on account of the œdema. The pressure of the finger made the skin to pit all over the body, and the presence of a large quantity of fluid in the abdomen was evident on palpation. There were no bodily deformities, such as talipes, spina bifida, imperforate anus, etc.

The *measurements* of the fœtus were as follow:—The total length from vertex to heel was 17 inches (43 cms.); that from vertex to symphysis pubis was 11 inches (28 cms.) The circumference of the abdomen was 16 inches (40·5 cms.), and was about 3 inches greater than that of the head. The cranial diameters were: Maximum, 4¾ inches (12 cms.); O.M., 4¼ inches (10·8 cms.); O.F., 4 inches (10 cms.); and s.O.B., 4 inches. The transverse measurement in the thoracic region was 4 inches, and the antero-posterior 3⅛ inch (7·8 cms.); in the region of the abdomen the transverse was 5½ inches (14 cms.), and the antero-posterior 3⅝ inches (9·2 cms.)

The Placenta and Membranes.—The placenta had a diameter varying from 7½ to 6¾ inches (19 to 17 cms.) It was rather thick relatively to its size, measuring at some points nearly 2 inches (5 cms.) The point of insertion of the cord was eccentric, being only 2½ inches from one border of the placental mass. The uterine surface of the placenta had a very characteristic pale, anæmic, and gelatinous appearance; and its tissue was very friable, so much so that at the time when the specimen came into my hands the placental lobes were torn in several places. A large quantity of clear, viscid fluid drained away from the placenta into the vessel in which it was kept. Near the margin of the placenta at one spot was a partially decolorized blood-clot about 1 inch in thickness, and having a diameter of about 2 inches. The fœtal surface of the placenta was most evidently anæmic. Its bloodvessels, save at the point of insertion of the cord, were collapsed, and were difficult to trace, for they did not stand out in the usual way as dark lines. The *amnion* was normal in appearance, perhaps a little less transparent than usual; but the *chorion* was distinctly thickened, and on its uterine surface there were very evident traces of decidual remains in the form of reddish patches. The *umbilical cord* measured 20½ inches (52 cms.) in length, and its circumference was about 3½ inches. It was thick but pale, and its bloodvessels were nearly quite empty, the vein alone containing a small quantity of blood-clot. The jelly of Wharton was present in large amount.

B. *Pathological Appearances of the Viscera, etc., in Specimen A.*

I. *Naked-Eye Appearances.*—In this specimen, as has been already said, the sectional method of investigation was employed. The infant was placed in the freezing mixture in the dorsal posture. The thighs were not markedly flexed, but were slightly abducted and rotated outwards, and the head was partially flexed upon the sternum. When the body was frozen, sections were made with the saw in different planes, and the appearances seen were traced and sketched whilst the dropsical fluid was still in a frozen condition. By means of these sections, which were in both the vertical and transverse planes, the salient points in the morbid anatomy were revealed, and the position of the fluid defined in a way that no other method could have achieved.

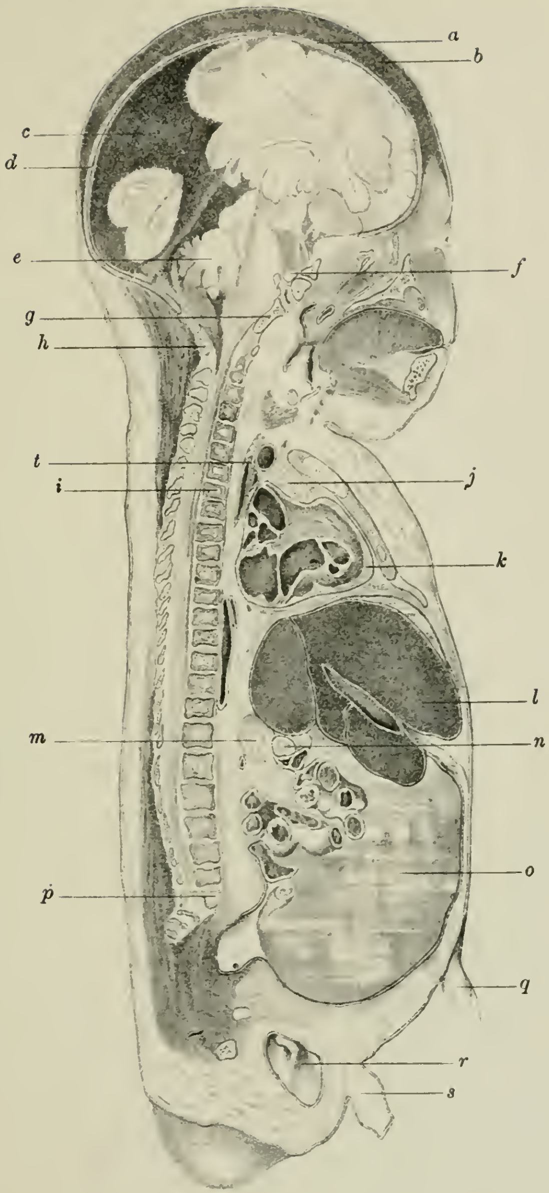
The following were the sections which were made and drawn:—

a. Vertical sections—

1. Mesial sagittal section of head and trunk, left face. Plate II.
2. Mesial sagittal section of head, right face.
3. Mesial sagittal section of pelvis, right face.
4. Lateral sagittal section of head and trunk, ¾ inches to the left side of No. 1, right face shown. Plate III., Fig 1.
5. Lateral sagittal section of head and trunk in same plane, left face shown.

b. Transverse sections—

6. Horizontal section of right half of body at level of 7th cervical vertebra.
7. Horizontal section of right half of body at level of 5th dorsal vertebra.

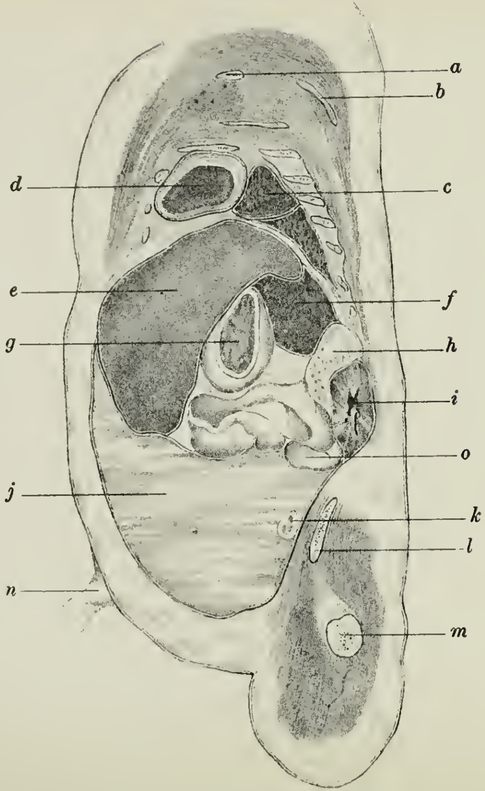


Vertical Mesial Section of Fœtus with General Dropsy
(½ Nat. Size).

Wm CATHIE DEL ET LITH

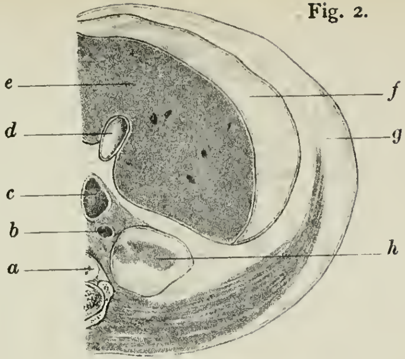
Plate III.

Fig. 1.



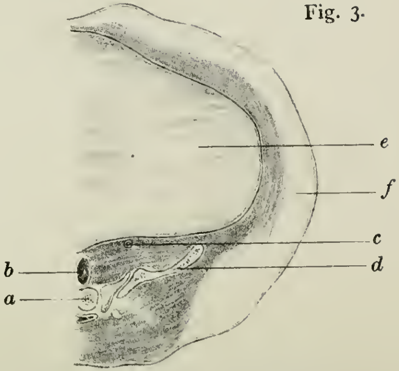
Left Lateral Sagittal Section of
Dropsical Infant, right face shown (½ Nat. Size).

Fig. 2.



Transverse Section at level of
1st Lumbar Vertebra.

Fig. 3.



Transverse Section at level of
1st Sacral Vertebra.

8. Horizontal section of right half of body at level of 1st lumbar. Plate III., Fig. 2.

9. Horizontal section of right half of body at level of cartilage, between 1st and 2nd sacral vertebræ. Plate III., Fig. 3.

From the study of these sections, and from such further dissection as was necessary, the regional anatomy and pathological appearances of the viscera in this fœtus were determined; but since the space at my command is limited, the results must be described shortly as follows:—

Vertebral Column.—The spinal canal and cord were intact, and normal in size and form; the ossification of the vertebræ was well advanced for the age at which the fœtus had arrived; the upper part of the spine was nearly straight, whilst the lower dorsal region showed a distinct anterior bulging, the lumbar portion a slight concavity anteriorly, and the sacro-coccygeal part had its usual slight anterior concavity; the curves of the spine were due to the position in which the infant had been frozen, and probably also to the ascites. The various regions of the spine bore to each other the usual relationship as regards length which is found in the premature infant; that is to say, the dorsal region was nearly twice as long as the cervical, whilst the lumbar was practically equal in length to the cervical. The total length of the spine was 16 cms., the cervical region was 3·5 cms., the dorsal 6·5 cms., the lumbar 3·3 cms., and the sacro-coccygeal 2·7 cms.

The Region of the Head.—The tissues of the scalp were markedly infiltrated with blood-stained serum, but there was no special caput succedaneum. There was little head-moulding, and the absence of caput and of head distortion was due no doubt to the easy character of the labour. The bones of the head were well ossified, and there was no undue distension of the cerebral ventricles with fluid; there was, therefore, no sign of hydrocephalus. In the cartilage between the post-sphenoid and basi-occiput there was the trace of a canal, probably the remnant of the canalis cranio-pharyngeus. The inclination of the basis cranii to the horizon was normal; the brain was well formed in all its parts, and its convolutions and fissures bore a normal relation to the sutures of the cranium. There was a blood effusion into the falx cerebri and tentorium cerebelli—a meningeal hæmorrhage probably due to the diseased state of the placenta and fœtus, and not to any special pressure on the head during labour. In the region of the face the only abnormality was the presence of great subcutaneous œdema, especially under the chin. The tongue was partially protruded from the mouth.

The Region of the Neck.—The structures in the neck were normal, save with regard to their position; they were all displaced upwards to some extent. The hyoid bone, which normally lies at the level of the third cervical vertebra, lay opposite to the body of the axis. The larynx, which should extend from the level of the junction between the body and odontoid process of the axis to that of the fifth cervical vertebra, was found in this case to reach from the level of the upper border of the atlas to that of the disc between the third and fourth cervical vertebræ. The trachea was found to bifurcate opposite to the body of the second dorsal vertebra, *i.e.*, one vertebra higher than is normal at birth. The trachea was 3 cms. in length, the normal measurement; the thyroid gland was normal; the thymus gland extended a little higher in the neck than is usual; and the left innominate vein crossed over the trachea at the level of the sixth cervical vertebra. The relatively high position of the structures in the neck was no doubt mainly due to the presence of fluid in the abdomen.

The Region of the Thorax.—The thoracic viscera and the anterior thoracic wall were displaced upwards; the upper margin of the sternum lay at the level of the sixth cervical vertebra; the tip of the ensiform cartilage lay opposite to the body of the sixth dorsal vertebra, and was tilted forwards,—indeed, the whole of the lower half of the sternum was displaced forwards as well as upwards. The distance between the manubrium sterni and the spinal column was 1·5 cms., whilst that between the tip of the ensiform and the body of the sixth dorsal vertebra was 5 cms. In a normal infant the corresponding measurements were 2·5 and 5·2 cms., and in that case the manubrium lay opposite to the first dorsal vertebra and the tip of the ensiform at the level of the tenth dorsal vertebra. The central tendon of the diaphragm lay opposite to the body of the sixth dorsal vertebra, instead of at the level of the disc between the eighth and ninth dorsal vertebræ, its normal position at birth. All the internal diameters of the thorax were smaller than normal, but they were not proportionately so. The antero-posterior diameter at the level of the manubrium was relatively smaller than that at the level of the ensiform, and this due to the tilting forwards of the sternum in its lower half. These two diameters were 1·5 and 4 cms. as compared with 2·5 and 4·5 cms. in the normal infant. The ribs lay more generally transversely than they usually do, for the whole thorax was elevated. The thymus gland appeared to be normal in form and size; it was a little higher in the neck than is normal. A clear yellow-coloured fluid was found in the pericardial sac, lying anterior to and below the heart. The position of the pericardial effusion was due to the way in which the fœtus was placed during freezing. The heart corresponded in level to the first six dorsal vertebræ, instead of to the fourth, fifth, sixth, seventh, and eighth dorsal bodies, which is its usual position; it was therefore much displaced upwards. The valves and orifices of the heart were normal so far as could be judged, but the section had unfortunately passed through the foramen ovale. The ductus arteriosus was largely patent; the cardiac walls were, however, more anæmic in appearance than is usual. The lungs were unexpanded, lay posteriorly and laterally to the heart, and were surrounded by blood-stained pleural effusion. The apex of the right lung lay at the level of the sixth cervical vertebra, and its base extended no lower than the seventh dorsal; the left lung had very similar relationships. The trachea and œsophagus were normal, save for their relatively high position; and the thoracic duct was present.

The Region of the Abdomen.—The most remarkable pathological condition in this fœtus was the presence in the abdomen of a large quantity of transparent fluid of a light yellow colour, and containing no flakes of lymph; it occupied nearly the whole of the lower and anterior parts of the peritoneal cavity, and had evidently displaced the viscera upwards and backwards, and bulged the anterior abdominal wall forwards. The umbilical cord was attached at a point 2 cms. above the symphysis pubis and 9 cms. below the tip of the ensiform cartilage, and lay opposite to the body of the first sacral vertebra, being about one vertebral body lower than in the healthy infant. The umbilical arteries and veins and the urachus were normal. The liver, which was paler in colour than normal, and had like all the other viscera an anæmic appearance, was tilted upwards and forwards, especially in its anterior less fixed part. In vertical extent in the middle line the liver corresponded to the six lower dorsal vertebræ and to the first lumbar vertebra, instead of to the four lower dorsal and two first lumbar vertebræ, as in the normal infant. The whole liver was also rotated somewhat to the left side, and ascitic fluid intervened between the right and anterior hepatic surfaces and the anterior abdominal wall. The anterior surface of the liver was directed forwards and upwards instead of forwards only, and the left inferior surface looked less directly backwards and more in a downward direction than is normal. The gall-bladder contained some bile. The pyloric end of the stomach crossed the middle line at the level of the body of the twelfth dorsal vertebra, and was therefore one vertebra higher than is normal. The stomach contents were of a greenish colour and partly fluid; the organ lay entirely under cover of the left hepatic lobe. The spleen was somewhat enlarged; its greatest vertical measurement was 3 cms., and its greatest antero-posterior 3·3 cms. Its form, as seen on vertical section, was more quadrangular than is normal. The splenic enlargement was chiefly in the antero-posterior direction, but this increase was not altogether real; it was partly due to the displacement upwards of the lower end. The pancreas appeared normal in size and form, but was much infiltrated with fluid. Lying near the posterior abdominal wall, and under the left hepatic surface, were the closely packed together coils of the small intestine. Very little meconium was present in the bowel, and the coils were not glued together by lymph. The transverse colon was displaced backwards; the cæcum lay above its usual position on the right side; but the descending colon and sigmoid flexure pursued their usual course on the left side. The large intestine had a smaller calibre than is usual, and contained little or no meconium. The third part of the duodenum crossed the middle line at the level of the first lumbar vertebra. The supra-renal capsules were normal in size, but were anæmic in appearance. The kidneys were normal in position, but were slightly smaller than is the rule, and were not distinctly so lobulated as is usual at birth; they were also paler in colour than is usual. The mesenteric glands were present, and did not seem to be abnormally large.

The Region of the Pelvis.—The external genital organs were markedly œdematous; indeed, so great was the surrounding anasarca that the scrotum was embedded in it, and did not hang free, as it normally does. The tunica vaginalis testis on both sides contained a quantity of serous fluid, and the urethra was not occluded. The bony pelvis had its natural fœtal form. The bladder had an oval shape, the long axis of the oval passing upwards and forwards; it contained about 5 c. cms. of clear urine, which gave an indication of the presence of albumen when tested with alcohol. The rectum was collapsed, and contained little meconium; it was normal in form and position. A clear fluid was found in the pelvic cavity, both laterally and also in the middle line in the recto-vesical pouch.

The Limbs.—Save for the state of gelatinous anasarca of the subcutaneous tissue, and the anæmic appearance of the muscles, the limbs were normal.

II. *Microscopic Characters.*—In the case of this specimen the microscopic examination of the tissues was somewhat unsatisfactory, for the freezing of the infant had to some extent altered the characters of the parts; still, by comparing these appearances with those in healthy frozen infants, it was possible to some degree to correct this source of error, and to state what were the histological peculiarities of the viscera and skin.

A thin layer of epidermic cells was present, and underneath this both cutis vera and subcutaneous tissue had an opened-out appearance. There were fewer fat cells than usual, and both the subcutaneous and muscular tissue had a loose and spongy appearance. The sections of the liver which were examined gave somewhat unsatisfactory results, for the tissue had evidently been altered both by freezing and by early post-mortem changes. The liver cells were imperfectly formed, and amongst them were many nucleated white cells; and whilst these latter were not, I think, so numerous as to constitute a lymphomatous state of the liver, still I have not seen so many leucocytes in the liver of a normal full-time infant. The same remarks apply to the microscopic examination of the spleen. The lungs, the intestines, mesentery, and the supra-renal capsules were, so far as could be made out, normal in structure, although there was a general anæmic appearance to be noted in them as in the other viscera. The kidneys also were, save for their bloodless condition, fairly normal. There were not, perhaps, so many uric acid infarcts as are present at the time of birth; and, in the opinion of one pathologist to whom I showed the sections, there was an abnormally large amount of connective tissue in the left kidney, but I do not think that this slight deviation from the normal could be supposed to be the cause of the general œdema. No pathological changes were detected in the umbilical cord or its vessels, save the unusually large amount of œdematous jelly of Wharton.

(*To be continued.*)

VII.—ISOLATION HOSPITALS, WITH SPECIAL REFERENCE TO THE REQUIREMENTS OF RURAL DISTRICTS.

By J. Maxwell Ross, M.A., M.B., Dumfries.

(*Read before the Border Counties Branch of the British Medical Association, 28th April* 1892.)

Among the more important duties which fall to the lot of a Sanitary Authority is the prevention of the spread of infectious diseases. Though the question of how this may be best effected in the majority, if not in all of them, is one that has been practically settled by the profession long ago, the ideas that exist outside, particularly in rural districts, are not unfrequently vague and confused to a degree. The tendency of our forefathers to regard these pestilences as "visitations of God" has not yet quite disappeared, for it is but a few weeks since I was informed by a clergyman in this county that my endeavours to stay an outbreak of scarlet fever had been resented by at least one of his elders—a man occupying a certain position in the educational world—as an interference with the Divine decrees. Another opinion, and one a little more difficult to combat, because it happens to be nearer the truth, is that improved sanitary conditions are alone necessary to stamp out infectious diseases. Even gentlemen interested in hospital administration and the treatment of cases of fever have not hesitated to endorse this view. While it is doubtless true of zymotics like enteric fever and diarrhœa, which are essentially filth-diseases, spreading by fæcal contamination, but a slight knowledge of the natural history of others is required to show that neither improvements in the sanitary surroundings of dwellings nor the introduction of wholesome supplies of water by gravitation, which has done so much to reduce the enteric death-rate in country villages, will stay the progress of diseases that pass from one to another by direct infection. For these, in addition to the special prophylactic measures, such as vaccination for small-pox, which are individually applicable, isolation of sufferers affords us the best means of combatting their spread.

To expatiate on the advantages of Isolation Hospitals before a medical audience is unnecessary, but I may be permitted to cite one recent example from our experience in Dumfriesshire.

For purposes of Local Government and administration of the Health Acts, this county is divided into six districts. In each of these the Infectious Diseases Notification Act is in force. One only, the Dumfries district, is at present provided with hospital accommodation—to wit, the fever wards at the Dumfries and Galloway Infirmary. If we are to judge by the incidence of typhoid fever, the hygienic conditions in this district, particularly in that part immediately outside the burgh, are at least as bad as they are in any other part of the county. During the past quarter two notifications of scarlet fever came in from densely populated localities in this district. The first case occurred in a house of two rooms, the family consisting of three adults and five children; the second in a house containing a kitchen which was utilized as a small shop, a small room used as sitting-room and bedroom, and a small attic room. The family consisted of a widow and four young children. The conditions were altogether highly favourable to the spread of the disease. As soon as possible after the notifications were received the patients were removed to the Infirmary. The houses were disinfected by the sanitary staff, and the children who had not shown symptoms quarantined from school for over a fortnight, and their clothes as well as their persons disinfected before they were permitted to return. The shop was closed for the same period. There were no fresh cases, and a probable epidemic was thus smothered in its beginnings. The result affords a striking contrast to what obtained last year in other districts, in which our endeavours to combat the progress of outbreaks that occurred were of small avail because of the want of proper means of isolation.

In recommending the establishment of hospitals in rural districts one of the first questions that presents itself is, Whether the provision to be made should be of a permanent or temporary character? Local Authorities facing the question for the first time frequently become enamoured of the hospital constructed of wood or iron because of the smallness of first cost as compared with that of a permanent building of stone or brick. Without entering into a discussion of the disadvantages that have been found to attend the use of temporary hospitals beyond a single epidemic, it may suffice to point out that the difficulties in the way of maintaining in them an equable temperature along with a pure atmosphere have been found so great that they are now giving way to permanent structures. Dr Thorne gives instances of temperatures as low as 38° and 32° Fahr., and cites the case of a somewhat substantially constructed wooden building being closed during winter because it was believed that the deaths of two patients had been brought about by the low temperature which it was found impossible to obviate. Mr Fosbrooke, County Medical Officer for Worcestershire, with whom I have been in correspondence, writes me, that after sixteen years' experience of rural fever hospitals he is strongly opposed to temporary buildings; and in his first annual report to the County Council calls attention to the natural unwillingness to erect them for the reception of cases that are apparently mild, but which, if not isolated, sometimes give rise to serious outbreaks. My own view is that temporary hospitals have their value, but chiefly as adjuncts to permanent buildings, whose accommodation may be too limited to cope with an epidemic.

This leads to the question, What amount of accommodation ought to be provided in a permanent hospital? Here some slight difference of opinion exists among the authorities. Dr, now Sir George Buchanan, so far back as 1876, laid down as a suitable standard for most communities the ratio of one bed per thousand of the population. The latest writer on fevers, Dr Moore of Dublin, has raised this standard to one in 200 for urban, and one in 400 for rural communities. While as medical men, who know the difficulties that have to be faced in the treatment of cases in the small, ill-ventilated, and badly-lighted houses of the labouring classes, we may sympathise with this view of Dr Moore, we must admit that, for the present at least, his standard is impracticable. Even the lower standard of one in a thousand will be found difficult to get; but I think it should be recommended, and care taken to add, as I have done to the authorities here, that, as even this may at times be found inadequate, a sufficient space should be left around the site that may be chosen to permit of the erection of huts or tents for the reception of cases that cannot be admitted to the permanent wards.

The standard of one bed to one thousand of the population being accepted, we have next to consider how this provision can best be adapted to the needs of a community. Are we to have one large central hospital or several small ones? Where the area is limited, the advantages of one large central hospital are so obvious that it is unnecessary to enlarge upon them. To the medical officer in particular, who must always be the administrative head, whether he undertakes treatment or not, the idea of having one hospital only to engage his attention must commend itself; but when we have to deal with counties the disadvantages of a single central building, no matter how well it may be administered, at once obtrude themselves. Primarily there is the difficulty about the removal of patients, particularly over the long distances that would be necessary in a county of such extent as Dumfriesshire. It has been suggested that the best way of getting over this removal difficulty would be the erection of a small cottage hospital in each village or parish. The expense of erecting so many buildings would, however, be so great as to form an insuperable objection to this scheme. A compromise may very well be effected by endeavouring to secure a combination of several parishes, and placing the hospital at some convenient point, so situated that the majority of the cases requiring removal would not have to be driven further than six or eight miles at the outside. In a well-constructed ambulance, in which the recumbent posture can be assumed, it does not seem that such distances will add greatly to the risk of removal, if the patient be fit to be removed at all. Under the Local Government Act in Scotland the combination of parishes is already effected by the formation of districts, and my view is that provision may be most efficiently made by the establishment of at least one small hospital in each of these.

The site chosen for such a building should be dry and non-retentive, and, as I have already indicated, large enough to permit of the erection of temporary structures in the form of huts or tents, in the event of the permanent accommodation being found at any time insufficient.

The building itself ought to be one-storied, of stone or brick, and, if possible, so constructed as to permit of the treatment of at least two different kinds of infectious fevers at the same time. When one considers the diseases that require isolation, it will be admitted that this is by no means too much. Four rooms or wards are therefore necessary, and if ratepayers are liberal enough to agree to additional accommodation so much the better. The internal walls and ceilings should be provided with a smooth impermeable surface which can be readily cleansed. The flooring must be carefully laid so as to avoid the formation of chinks or crevices. It has been recommended that it should consist of wood blocks laid on a bed of concrete, and the surface stained and varnished. This would have the effect not merely of keeping out ground air, but also of allowing the floor to be cleansed otherwise than by washing with water at times when the beds might be occupied—a very important consideration. The ward space should be that recommended by the Local Government Board, viz., for each patient 144 square feet of floor and 2000 cubic feet of air. Ventilation may be carried out partly by the windows, partly by inlets, such as Tobin's tubes, while special outlets could also be provided. Heating may be done conveniently by open fires. The window surface must not be excessive, otherwise the air cannot be kept equably warm. One square foot to 70 or 80 cubic feet has been found to be a suitable proportion. The furniture must be as simple as possible. Carpets and curtains in particular are inadmissible. It goes without saying that the bedsteads should be of iron. There ought to be at least one movable bath, to which some such apparatus as that figured in Cayley's edition of Murchison's *Continued Fevers*, might form a useful adjunct. The water-supply ought, if possible, to be by gravitation, and very plentiful. While I am personally of opinion that well-kept earth closets are preferable to water closets in country districts, I am bound to admit that the convenience of the latter is greatly in their favour, and there does not seem to me to be any strong reason against their use in rural hospitals, provided they are put in with proper attention to trapping and disconnexion, and infected fæcal matter is not allowed to pass through them into water-courses. If the supply of water is insufficient they may, however, become very dangerous nuisances. Hence if a gravitation supply cannot be had, I should be inclined to oppose their introduction.

If the hospital is to be thoroughly equipped it must have, in addition to wards, an administrative building and certain out-buildings. The administrative should contain kitchen, scullery, pantry or larder, a dispensary, and bedrooms. In it the nurses or caretaker should be housed, and it ought to be a building separate from the wards, but connected with them by a covered way. The out-buildings will consist of a laundry, a mortuary, and a disinfecting chamber. The latter is of some importance, as it would become the disinfecting station for the district. A shed may also be required for the ambulance or fever coach, which must be provided for the removal of patients.

How should such hospitals be staffed? In places where it is not expected that they shall be occupied all the year round, there may be objection to the permanent engagement of highly-trained nurses. In that case an arrangement might be made for putting the buildings under the charge of caretakers, preferably a married couple, as the advertisements put it, "without encumbrances." When the hospital is not in use the husband might be engaged in outside work under the Local Authority. As soon as patients are sent in he should give his entire services to the hospital. The wife, if a sensible woman, ought to be able to undertake attendance on mild cases, always provided that they suffered from the same fever. Where two different forms of fever happened to be under treatment, further assistance, perhaps even the services of regular fever nurses, would be required, and should be obtained. If patients desired special nursing, and were willing to pay for it, the request should be granted. Medical attendance would in most of the cases be left to the patient's family doctor, but in the event of the distance being too great to permit of this, the services of another doctor living in the vicinity of the hospital might be secured. This could either be done directly by the patient, or through the medical officer of health, but I believe that giving patients the opportunity of being attended by their own medical men would help to make such institutions popular, while their small size would more readily permit of such an arrangement than would the larger hospitals required for towns.

Part Second.

REVIEWS.

A Treatise on the Ligation of the great Arteries in continuity, with Observations on the Nature, Progress, and Treatment of Aneurism. By CHARLES A. BALLANCE, M.B., F.R.C.S., Assistant Surgeon, St Thomas's Hospital, and WALTER EDMUNDS, M.C., F.R.C.S., Resident Medical Officer, St Thomas's Home. London and New York: Macmillan & Co.: 1891.

THIS magnificent volume is the outcome of the laborious investigations undertaken by the authors, with the object of solving the problem, why the ligation of the great arteries for aneurism has been and is still so frequently followed by hæmorrhage, in spite of the fact that the operation has been practised for upwards of twenty centuries. Whether the reader does, or does not, accept the conclusions at which the authors have arrived, he cannot but admire and praise the method in which they have carried out their work, and the form in which the records and results thereof are submitted for his consideration. The book is a model of what a monograph on any special subject should be, and it is remarkable among monographs for the number and excellence of its illustrations.

The authors contend that the only true safeguard against hæmorrhage is that the vessel wall should be "living and uninjured," and that the method of ligation by which the coats are ruptured is responsible for the occurrence of this fatal complication. In a preliminary chapter the normal histology and physiology of the larger arteries are described at considerable length. The process of physiological occlusion of vessels as observed in those arteries of the fœtus which are obliterated at birth, and the process of pathological obliteration by which Nature obliterates vessels in disease, are then adduced in support of the contention maintained by the authors, that rupture of the coats in ligation is not necessary in order to obtain complete obliteration.

The views expressed as to the conduct and fate of the corpuscles and of the clot as a whole, which is formed after ligature, are those now generally entertained, viz., that the removal of the clot and its replacement by vascular connective tissue are the direct results of proliferative changes in the wall of the vessel itself. The occasional occurrence of a diaphragm across the vessel at the seat of ligature in place of complete obliteration by apposition of the coats, is ascribed either to a faulty application of the ligature or to a too rapid absorption of the latter.

Of special interest are the observations on the conduct and fate of the ligature. With the exception of gold and platinum wire, all ligatures are absorbed, and if sterile lie quiet in the tissues until they have become absorbed. The order in which the different materials employed for ligature resist absorption was found to be—silkworm gut, ox peritoneum, silk, kangaroo tendon, chromic catgut.

The authors hold with Scarpa that, for the cure of aneurism, the artery from which it springs must be obliterated both above and below the sac. As to the choice of the operation in order to tie an artery with the greatest certainty and success, the authors maintain that the Celsian method of double ligature with division of the vessel should be discarded, inasmuch as it possesses no advantages and many disadvantages.

The vital question is then discussed, whether in the method of single ligature without division the coats of the vessel should be ruptured or not. As we have already indicated, they regard it as proved that rupture is by no means necessary for the occlusion of the vessel; and further, that it is not advisable, inasmuch as it greatly weakens the vessel and occasions serious danger from hæmorrhage, especially where the operation is followed by suppuration.

In selecting the material for ligature, the necessary requirements are that it should be sufficiently strong, inelastic, round, smooth, pliable, absorbable, but not too rapidly so, and at the same time capable of being rendered aseptic. The choice of the authors falls on ox peritoneum, kangaroo tendon, or boiled floss-silk; and failing these, on boiled Chinese twist, chromic catgut, or silkworm gut.

The various knots at present in use they regard as unsatisfactory, from the tendency of the ligature to become loose in the process of tying, the first hitch of the reef or surgical knot slipping before the second can be completed. They, therefore, recommend what appears to be a rather complicated procedure, viz., the use of two or more separate ligatures tied together to form what they call a "stay knot." "The best way of tying the two ligatures is to make on each, separately and in the same way, the first hitch of a reef-knot, and to tighten each separately, so that the loop lies in contact with the vessel without constricting it; then taking the two ends on one side together in one hand, and the two ends on the other side in the other, to constrict the vessel sufficiently to occlude it, and finally to complete the reef-knot." This method is also recommended for the ligature of ovarian and other peduncles.

The volume concludes with a chapter in which are described the procedures for ligation of the large arteries at the root of the neck and of the abdominal aorta and its main divisions.

Surgical Anatomy for Students. By A. Marmaduke Shield, M.B., F.R.C.S., Senior Assistant Surgeon, Charing Cross Hospital. Edinburgh and London: Young J. Pentland: 1891.

We have formed a high opinion of this little work, and can confidently recommend it to students or others who may wish to revise their anatomy in its bearings on medicine and surgery. Mr Shield has wisely not attempted anything in the way of illustrations, the book being specially intended for use either with the living model or with actual preparations in the dissecting-room. The majority of students are too apt to trust to plates and diagrams in getting up their surgical anatomy; if Mr Shield's book counteracts this tendency, and helps to make men revisit the dissecting-rooms, he will have achieved a step in the right direction.

Uric Acid as a Factor in the Causation of Disease, a Contribution to the Pathology of High Arterial Tension, Headache, Epilepsy, Mental Depression, Gout, Rheumatism, Diabetes, Bright's Disease, and other Disorders. By ALEXANDER HAIG, M.A., M.D. Oxon., F.R.C.P., Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women, etc. London: J. & A. Churchill: 1892.

IT is exceedingly difficult to know what to say about this book. Dr Haig, as is well known, has done some very careful and good work on this subject; but it seems that he has now got so thoroughly imbued with his topic, that, like Mr Dick and King Charles's Head, it crops up everywhere.

The author, when younger, was a great sufferer from megrim. In working out cause and effect he adopted an almost purely vegetable diet, and studied his excretion of uric acid. He soon found that if he prevented the presence of an excess of uric acid dissolved in his blood—in other words, if he rendered it less soluble, and therefore laid up more in his tissues, his spirits rose, his megrim vanished, until a time came when the stored up uric acid became free again in the blood, with a recurrence of all his annoying symptoms. If, on the other hand, he promoted the solution of the uric acid in the blood by means of alkalies or salicylates, and in consequence increased its excretion in the urine, he in time prevented any excess, and relieved both the local and general symptoms of what he terms uric acidæmia. Then arguing from the fact that alkalies thus increase excretion and benefit in the long run, while acids cause storing up of the uric acid in the tissues, Dr Haig classes all drugs which produce exhilaration under the same category as acids, and asserts that morphia, cocaine, antipyrin, caffein, and similar drugs, cause, first, diminished excretion of uric acid and increased retention of it in the tissues, with comparative freedom of the blood from it, hence the high spirits; secondly, excess of uric acid, which, appearing in the blood when the drug has ceased to act, brings the depression which invariably follows. According to this theory a morphinomaniac who always gratifies his desires should become before long a solid block of urates, as he must always be laying up for himself some superfluous uric acid.

Dr Haig's first premises seem correct, especially those founded on the great excess of uric acid excreted during the initial stages of a megrim headache, of which he gives a good example on p. 74. But we must decline to believe as yet, pretty though the theory may be, that epilepsy, Raynaud's disease, bradycardia, angina, suicide, and many other diseases, are so strongly influenced by the amount of uric acid circulating in the blood, until the deductions in this book are put through a more searching inductive process. We are afraid that too often in Dr Haig's mind—commendably eager to find a general rule—*propter hoc* has a shorter reaction time than *post hoc*.

Even if an excess of uric acid is excreted during some forms of illness, the excess may be due to, not the cause of, the disease, and the salicylates, which, in our author's hands, seem to be a sort of universal panacea, may affect the cause of the disease as well as influence the solubility of the urates.

It is impossible to go into the matter further here; the book is well worth reading, if only to stimulate others to theorise and experiment for or against its conclusions. Dr Haig, at any rate, is to be congratulated on his industry, and for having the courage of his opinions, wide though they be.

Dissertations by Eminent Members of the Royal Medical Society. Printed for the Society. Edinburgh: David Douglas: 1892.

We needed not the imprint to tell us that this exquisite specimen of the bookseller's work came from the workshop of the Constables. The lovely typography of the titlepage shows Walter Blaikie's hand and eye. The paper and type are admirable, and for its size the book is about the lightest we ever handled. A charming preface from the fertile pen of Sir Douglas Maclagan explains the aim and objects of the Society, and disarms criticism on the twenty dissertations by eminent old members now published in this interesting volume. Beginning with Daniel Rutherford and James Gregory—with Liston, Syme, and Christison, Allen Thomson, James Young Simpson, and John Brown—it ends with a very able and characteristic paper by James Matthews Duncan, one of the latest of the sons of this old Society who has joined the greater number. In most of the dissertations we already see the special bent of the author's intellect, though it would be hard to predict the author of *Rab and His Friends* from reading the somewhat characterless compilation by John Brown on the "Adaptation of the Eye to Distances." John Goodsir was rather wasting his great anatomical genius on a treatise on "Continued Fever;" and while Liston's treatise on "Fracture of the Neck of the Femur" foreshadows the splint known by his name, it gives no indication of the great operating surgeon, with his extraordinary personality.

The work is admirably edited, and all old members of the Royal Medical Society must feel grateful to the public spirit and enthusiasm which prompted and executed this excellent work.

Diseases of the Nasal Organs and Naso-Pharynx. By WHITFIELD WARD, A.M., M.D., ten years Surgeon to the Metropolitan Throat Hospital, etc. New York and London: G. P. Putnam's Sons: 1891.

THIS little book by Dr Ward is not one of those books which it is a pleasant task to review. The style is crude, inelegancies are not infrequent, and what is of even greater moment, the subject is treated in an incomplete and superficial manner. The author does not exhibit an extensive acquaintance with the literature of his subject nor with the views of others, and in the whole book he only refers by name to three writers—all Americans.

The work contains many wild statements, without any attempt at proof, as, for instance, that atrophic catarrh is due chiefly to smoking. It is hardly necessary to point out that this does not seem to agree with the opinion expressed by Dr Ward's own countryman Bosworth, that this disease is commonest at 15 years of age. Again, contrary to general experience, it is stated that deafness is often present in cases of polypus of the nose. The treatment of epistaxis is antiquated, and it is not even suggested that, as a preliminary step, the exact site of the bleeding point should be looked for and discovered.

We quote all that is said as to the etiology of nasal polypi:—"Chronic catarrhal inflammations of the nasal organs are the cause of the formation of these tumours in the majority of cases.

"Their formation is due to hypertrophied tissue which becomes elongated from the conformity of their abode, and constricted at the base from the constant dragging of the weighty mass" (page 137).

With this example of the author's style we conclude our notice, leaving our readers to decide whether they wish a closer acquaintance with this book.

Intubation of the Larynx. By JAMES B. BALL, M.D., L.R.C.P. Lond., Physician for the Diseases of the Throat and Nose, West London Hospital. London: H. K. Lewis: 1891.

THIS little book is mainly a reprint of a paper which the author contributed to the *Illustrated Medical News* in 1889, to which some additions have been made, and further statistics of the results of intubation have been introduced. The method of performing the operation and the management of the patient after intubation are very clearly brought before the reader. The second portion of the book deals with the sphere of application and results of intubation in diphtheria, croup, catarrhal laryngitis, œdema of the glottis, chronic syphilitic stenosis, cicatricial stenosis following tracheotomy, papillomata of the larynx, and foreign bodies in the air-passages. The book will certainly prove of use to those who are not already familiar with the operation, and who are anxious to give it a trial.

Epidemics, Plagues, and Fevers: their Causes and Prevention. By the Hon. ROLLO RUSSELL. London: Edward Stanford: 1892.

FOR the readers for whom this book is intended, namely, members of local sanitary committees, school managers, employers of labour, and others on whom the health of large numbers to a certain degree depends, it is admirable. Technical language is eschewed, and the foundation of principles for a very complete system of practical hygienic science is laid. The author says he is keenly sensible of many faults and deficiencies in the book, but we will congratulate him that they are so few, and that out of an immense mass of detail he has been able to compile a readable, clear, and, on the whole, accurate account of the origin and spread of infectious diseases, together with much valuable information respecting the factors which tend to aid and abet the spread of epidemic disease. The book is well up to date, the papers read at the last International Congress of Hygiene being laid under frequent contribution. The author is perfectly justified in saying that the gist of sanitary science is comprised in two principles—cleanliness and isolation; and to these he wisely adds a third, namely, unity of administration. He goes on to say, "The health officer of our time knows that the above principles must be interpreted in a wide and comprehensive sense. We have, for instance, the clear duty cast upon us of providing for the welfare of domestic animals as for ourselves; and if we do not fulfil this duty, mankind must inevitably continue to be a sharer in those bodily sufferings which our neglect has caused in them. More than one of the maladies which lead to great distress and sorrow among us are traceable to parsimonious and inhuman conduct towards the animals which depend on our care. Revered leaders of high authority have shown that epidemic diseases, far from being due to mysterious 'telluric and meteoric influences,' as was often whispered fifty years ago and less, are really caused by vulnerable, destructible, and preventable products of organic life; and that it is well within the power of nations and individuals to drive them from the face of the earth."

Essays on Acromegaly by Dr Pierre Marie and Dr Souza-Leite; with Bibliography and Appendix of Cases by other Authors. Translated and edited by PROCTER S. HUTCHINSON, M.R.C.S. London: The New Sydenham Society: 1891.

THIS volume includes the original essay of Marie, written in 1886, a thesis of Souza-Leite on the subject, and a description of a number of cases, rightly or wrongly diagnosed as acromegaly, taken from current medical literature since the work of Souza-Leite was published. We can add little more to the criticism of this subject which appeared in our last January number (p. 647). The translator has allowed himself very considerable latitude in striking out details given in the original—as, for instance, measurements of the affected hands or skull. In other respects the translation is all that could be desired.

Besides the thirty-eight cases of the disease given by Souza-Leite, Dr Hutchinson has collected details of ten more. The nature of some of these, however, is very doubtful, and rather emphasizes the need of caution in diagnosis than illustrates the symptoms of the malady of Marie. Dr Kanthack's case, p. 175, for instance, might be regarded as some form of congenital hypertrophy; while case 45, on the other hand, corresponds more to hypertrophic pulmonary osteo-arthropathy.

The Medical Annual, 1892. Tenth Year. Bristol:
John Wright & Co., Stourbridge.

MORE ambitious and fuller than the *Year-Book of Treatment,* this publication maintains its high level of excellence. We need say little about it at this time. The sketch of the progress of Sanitary Science should be carefully read. The one or two plates included in this year's volume are well drawn and reproduced.

A Pocket Case Book for Practitioners and Students. By ALEX. THEODORE BRAND, M.D., C.M., Medical Officer, Driffield Cottage Hospital, etc. London: Baillière, Tindall, & Cox: 1892.

THIS is a charming little pocket book for jotting down details of interesting cases. With room for history, a separate part for each system, and for further notes, with two diagrams of the body for marking in the parts affected, and with a temperature chart, any case may be fully recorded. To do so properly one must be neat-handed, use a very fine nib, and must write very small. Conventional signs are suggested for noting some of the commoner physical signs; they are more conventional than Dr Wyllie's, which, however, could easily be used instead. Both designer and publisher are to be congratulated on their venture.

A Summer School of Art and Science. Summer Meeting, Edinburgh, 6th Session, August 1st–31st 1892. University Hall, Edinburgh.

THIS is the Prospectus for the coming session of the "Vacation Studies," with which the energy and enthusiasm of Prof. Geddes and his friends have of late years filled the idlest of months. The scheme continues to show unmistakable signs of healthy vitality and progressive development—the experience of past sessions being utilized in making the old courses more and more practically useful and adding new ones. This year there is to be a new "Section of Education" with a most attractive programme.

The courses certainly constitute an interesting educational experiment, and can scarcely fail to be of some practical importance in this way. They are also well calculated to afford much pleasant instruction to those who take part in them, and to form a source of inspiration of good work throughout the coming winter.

Our space will not allow of an enumeration of all the manifold opportunities for instruction. For these we must refer readers to the Prospectus itself. They will find it full of interest, and by no means such dull reading as similar publications often are. There are not many in our profession who have leisure to spend in courses of this kind, but few will read the account of the arrangements for this "Summer School" without being infected by some of the bright enthusiasm which glows through its somewhat exuberant phraseology, and wishing for the time that they were free to enroll themselves as students, and partake of the benefits of lecture, excursion, and seminar.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXI.—MEETING VIII.

Wednesday, 6*th April* 1892.—Mr JOSEPH BELL, *President, in the Chair.*

I. EXHIBITION OF PATIENTS.

1. *Dr J. W. Martin* showed three cases of PHTHISIS which had been cured. The first had had all the symptoms of phthisis—night sweats, cough, spit, hæmoptysis, emaciation, etc. There were signs of consolidation in the chest. Under diet, counter irritation of the chest, inhalations, and internal medication, the patient gained 1½ stones in weight, and was now apparently in perfect health. The second was a case not quite so far advanced, which under similar treatment had made a good recovery. The third, a case in which the febrile symptoms were very marked, with all the signs of phthisis with cavity formations, and in which bed sores formed, became convalescent under similar treatment, and was now able to follow his occupation.

2. *Dr Shand* showed a patient on whom AMPUTATION OF THE THIGH UNDER ICE had been performed thirty years ago. Union took place upon the third day by first intention. No other antiseptic was used.

3. *Dr Allan Jamieson* exhibited—(*a.*) A case of DERMATITIS PAPILLARIS CAPILLITII, OR ACNE KELOID. He remarked—Under the first of

these terms, Kaposi in 1869 described an inflammatory condition of the hair system, seated particularly at the nape of the neck, but invading the occiput or being limited to the crown, allied to sycosis, but leading to changes of a peculiar type, which are well exemplified in the patient now shown. It will be seen that these affect the beard and not the scalp, and it is now known that Kaposi was in error in restricting the localization to the scalp, as it may affect any hairy part. The patient, now aged thirty-two, and in otherwise good health, first came under my care two years since, and had then suffered from the disease for eighteen months. It commenced by the formation of a pustule in the beard, pretty well down on the side of the neck on the left side. More formed, and produced a thickly crusted area, which itched a good deal. After a month's treatment he considerably improved, and I lost sight of him till a fortnight since. Then thick crusts concealed the true state of matters. These were removed by boracic starch poultices. You will observe that on the left side of the neck, the beard, elsewhere close and healthy, is for a space of 4 inches across by 2 deep replaced by a hard, gristly, almost immovable formation, nodular and uneven. On this the hairs, dark and remarkably strong in contrast to the much fairer and softer ones of the rest of the beard, are grouped into bundles like the bristles of a brush, imparting a most extraordinary appearance to the affected part. When the hairs are forcibly extracted they can be removed only with much difficulty and pain, and are seen to be deeply and very firmly implanted. Leloir and Vidal regard this as a pilo-sebaceous folliculitis, with a tendency to the formation of keloid. Dubreuilh shows that it commences in the sebaceous gland, leading to an abscess in the neighbourhood of the hair follicle. There is a perifolliculitis followed by keloid. Keloid, it is well known, often starts in acne scars and extends from this point of origin. Here it immediately succeeds the acne, the adjoining follicles are infected, and eventually the gristly uneven tissue here seen is produced. Great benefit has resulted from washing with superfatted potash soap, and the subsequent inunction of an ointment of sulphur and ammoniated mercury. As to the cause little can at present be said. Certain persons and certain races develop keloid much more readily than others; there is a predisposition in this direction, but whether this is set agoing by microbial agency or not is quite undecided. (*b.*) Case of MUCOUS PATCH, OR CONDYLOMA, apparently due to trichophyton. John M., aged 20 months, was brought by his mother, a remarkably healthy-looking woman, to the Royal Infirmary on March 5th, 1892. No history or suspicion of specific taint could be elicited by careful questioning, either on the father's or mother's side. The child itself was well grown, and past the age at which usually any evidences of inherited syphilis of the secondary era are still persistent. It appeared that in the beginning of January a small round patch showed itself on the right shoulder, which was pronounced ringworm by their doctor, and shortly disappeared when painted with iodine. Soon after this a little pinkish elevation was noticed in the cleft of the nates close to the margin of the anus, on the right side. This grew slowly at first, but had in course of the two previous weeks increased to the size of a shilling, being divided transversely by a fissure, and being surrounded by an areola rather more than an eighth of an inch broad. It resembled in the most exact manner an ordinary condyloma. Some of the epithelium on its surface was scraped off and examined for trichophyton, but no mycelium nor spores could be seen. There were also three or four vesico-pustules on the left buttock. Washing daily with superfatted potash soap and warm water, followed by inunction with a sulphur and ammoniated mercury ointment, has caused its complete disappearance. Some time since an almost exactly similar growth was seen inside one nostril of a healthy boy from the country, who worked among cattle, and which was cured by like treatment. Both situations are unique ones for ringworm, and though microscopic verification is awanting, there is strong presumptive evidence that this was a case of ringworm in an unusual situation. The heat and maceration on the tender skin of the infant had the same effect on the patch of ringworm that it has on the flat syphilitic papule. At the same time, in one case of inherited syphilis a condyloma at the margin of the anus was the sole remaining trace of syphilis in a child aged twenty-one months. In it, however, there was a clear history of hereditary disease. Brocq has met with an indisputable case in the person of a young man of lymphatic constitution, free from all venereal taint, affected with eczema at the verge of the anus. He mentions also that they may be met with in pregnant women who have copious leucorrhœa.

4. *Mr Caird* showed two cases, in women, of THYROIDECTOMY. The first had the right lobe and portion of the isthmus removed on account of a rapidly growing goitre which had interfered with respiration and deglutition. The operation was carried out fourteen days ago. The wound had healed by first intention, and the patient getting out of bed on the ninth day. All respiratory embarrassment had disappeared. There was still slight dysphagia. The second suffered from EXOPHTHALMIC GOITRE. Removal of the right lobe was effected about a year ago with singularly beneficial result. During the last few months, however, symptoms of headache and palpitation had re-developed, but there was no increased proptosis.

II. Original Communications.

1. *Dr Gillespie* read his NOTES ON A CASE OF PAROXYSMAL METHÆMOGLOBINURIA, which appeared at p. 1093, vol. xxxvii., of this Journal.

The President congratulated the Society on having such a scientific and practical paper read to them, and expressed his hope that a valuable discussion might result.

Dr Allan Jamieson had nothing to say except of a complimentary nature. The use Dr Gillespie had made of the spectroscope was interesting, and, if continued, might lead to further discoveries.

Dr J. W. Martin said he thought it was peculiar in this case, as the patient had not been in a malarious country. Was this a case of undiagnosed ague? In this case the urine was much darker than in the malarial hæmaturia. There was some connexion with the spleen in this case. More careful and more frequent measurements of the spleen might have been made. He had not tried the effect of a blister on the surface. The case was of interest from its rarity as not being due to parasites. It must have a bearing on the sympathetic functions of the spleen and the kidney, and perhaps liver.

Dr Hunter also spoke

Dr Gillespie thanked the Society for the compliments paid him by those who had spoken. He pointed out that it was a purely scientific inquiry, not a clinical one. Answering Dr Hunter, he had not used pyrogallic acid to endeavour to produce an attack. The investigation only covered a short period, and was not intended to be comprehensive.

2. *Dr A. Home Douglas* read a paper by Dr Allan Jamieson and himself on OBSERVATIONS ON THE ACTION OF ANTIMONY IN DISEASES OF THE SKIN, which appeared at p. 1073, vol. xxxvii., of this Journal.

Dr Allan Jamieson observed that he had little to add to what had been said in the paper just read by Dr Home Douglas. There were at present in his wards two patients who were being treated very successfully by tartrate of antimony. One was an elderly woman with widely spread psoriasis. In her case the skin had become softer, and the patches of psoriasis had steadily faded under the combined administration of antimony and the employment of alkaline baths of short duration, followed by inunction with various ointments; that which on the whole had suited best was the Unguentum vaselini plumbicum of Kaposi. The other was an instance of general exfoliative dermatitis, which had developed out of a psoriasis of very moderate intensity and considerable duration, in a woman of 30. Her case bore the closest resemblance to that of G. D. in all essential particulars, and like his was rapidly disappearing under antimony. He did not for a moment wish it to be inferred that he proposed antimony as a panacea, but he thought that by it cures could be effected of diseases hitherto regarded as extremely intractable.

Dr Gillespie said that an examination of the blood in all these cases was of great value; and if the hæmoglobin and corpuscles were above normal, depleting remedies to lower the blood-pressure always aided the use of any special remedies. To treat the skin as a special organ was wrong, to treat the state of the blood which nourished it was rather to be aimed at. He had seen several such cases cured by regular doses of purgatives and lowering diet, combined with the then fashionable local remedy; while other cases with a blood below normal in corpuscles or pigment were soon benefited by the ordinary remedies *plus* a stimulating diet and tonics. Antimony probably acted by lowering the blood-pressure, as well as by helping the nutrition of the skin.

Dr Church referred to the chart in connexion with one of the cases of psoriasis, and asked Dr Jamieson if the small secretion of urine, and the abnormally small elimination of urea, as shown by the daily estimation throughout the treatment of the case, had not been a cause of anxiety. Had this diminution to do with the administration of antimony? And if it had, was there not the risk, while successfully treating the skin disease, of running into other dangers by suppressing the normal physiological action of the kidneys? Dr Church joined with the other members of the Society in thanks to Dr Jamieson for his elaborate paper.

Dr Hamilton Wylie expressed pleasure at hearing the excellent results of the administration of tartrate of antimony, and homologated Dr Allan Jamieson's sentiment, that in it we have an additional valuable remedy in treating acute inflammatory diseases of the skin. He thought that the potassium present in tartrate of antimony might have something to do with the valuable results, as in the administration of sulphide of antimony the same effects are not alleged to be produced. The sulphide is usually made use of by veterinary practitioners. Dr Wylie thought it well that Dr Jamieson made a rider, that tartrate of antimony did not agree with every one, and that care should be exercised in its administration.

Dr Douglas replied.

3. *Dr Boyd* read NOTES ON TWO CASES OF CEREBRAL HÆMORRHAGE, which appeared at p. 1089, vol. xxxvii., of this Journal.

The President remarked on the excellent, brief, and yet precise manner in which the cases were detailed, and expressed his opinion as to the importance for the study of cerebral localization to have records like this of cases watched by competent observers.

Dr Russell said that the careful and accurate recording of cases of cerebral lesion was of great importance and value, and he hoped Dr Boyd would continue to record the interesting cases he might see from time to time. Such records did not provoke discussion, but the more one saw of cerebral cases in the *post-mortem* room, the more cautious it tended to make one in forming an absolutely certain diagnosis.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LIII.—MEETING VII.

Wednesday, 11th May 1892.—Prof. A. R. Simpson, *President, in the Chair*.

I. *Dr J. W. Ballantyne* exhibited—(*a*.) A specimen illustrating RETARDED DEVELOPMENT OF THE EMBRYO. The history of the case, as supplied by Mr John Helm, one of the students of the Medical Missionary Society, was as follows:—Mrs W., 36 years of age, had been married eleven years, and had been pregnant nine times. Her first pregnancy had ended in a miscarriage at the third month, and this was by her ascribed to a fall. She had had six full-time children, of whom four were still alive, and two had died of bronchitis at the age of two months. Another pregnancy, which occurred about six years ago, terminated prematurely at the ninth week, and this abortion was considered to be the result of a strain through lifting a weight. Her ninth pregnancy began soon after July 5th, 1891, when her last menstrual flow occurred. She had the usual early symptoms of pregnancy, and on October 2nd, whilst she was doing a heavy washing, she noticed some hæmorrhage from the vagina which lasted for two days, then disappeared for about a day, and returned on October 6th, when after some uterine pains an intact gestation sac was expelled. There was no hæmorrhage after the expulsion of the ovum. The woman was kept in bed for a week after the abortion, was regularly douched with antiseptic solution, and recovered quite satisfactorily. She is, at the time of writing (May 1892), at the fourth month of a tenth pregnancy. The gestation sac when fresh measured 7 cms. (2¾ in.) in length, and was a little more than 13 cms. (5¼ in.) in circumference. It was of the size and form of a large hen's egg. The chorion was everywhere covered with the decidual membranes save at the broad end of the ovoid, where the outer surface of the fœtal membranes was laid bare. At the narrow end there had evidently occurred some hæmorrhage into the decidua, for there was a distinct hard mass there to be felt, which when cut into was found to be a blood-clot. The specimen was regarded as a gestation sac from a pregnancy which had reached the term of from two and a half to three months, and it was expected that when the sac was opened an embryo of about 6 cms. in length would be revealed. A slit was made through the fœtal membranes, and about a tablespoonful of liquor amnii escaped; this fluid was somewhat darker in colour than is normal, and was slightly muddy. No embryo was at first seen, but on careful examination one was found lying in close apposition with the internal surface of the sac. It measured scarcely 2 mms. in length, and was therefore the same size as the human embryo obtained by His in 1869, and regarded by him as fourteen days old. The specimen suggested several interesting questions which would be discussed at a future time when a microscopic examination had been made.

(*b.*) A specimen of EXOMPHALOS AND ANENCEPHALY of the fœtus. The case had occurred in the practice of Dr Ballantyne of Dalkeith, to whom he was indebted for the specimen. The following were the clinical details. The patient was at the sixth month of her pregnancy, and when Dr Ballantyne was called to her he found a footling presentation, and noted that there was very considerable hæmorrhage going on. A foot was felt high up in the pelvis, and a bag of waters which was at the time thought to be the membranes of a second fœtus. The infant was quickly delivered by the feet in order to stop the bleeding, and during delivery the bag of waters was ruptured. It was then found that the fœtus was exomphalic, and that what had been taken for a second bag of membranes had been a sac containing the displaced abdominal viscera along with peritoneal fluid. The placenta followed the child almost immediately, and the marked shortness of the umbilical cord explained the bleeding and also the rapid expulsion of the afterbirth. The heart, which was also external to the body cavity, beat for fully a quarter of an hour after the birth of the child. The mother had given birth previously to four healthy children. She was quite healthy and so were the children. She had no maternal impression, and did not anticipate that there would be any abnormality in the product of her last pregnancy, and she suffered from no unusual symptoms during gestation. The fœtus, a female, measured 24 cms. in length. There was complete anencephaly, and spina bifida affected the whole spine with marked retroflexion of the vertebral column. There was also marked exomphalos; no doubt at the commencement of labour the abdominal viscera had been contained in a short sac made up of the peritoneum and amniotic sheath of the cord, but this had been ruptured during labour, and at birth the abdominal viscera were exposed to view Not only were certain of the abdominal organs (liver, stomach, spleen, large and small intestine, etc.) found protruded from the abdominal cavity, but the heart also was amongst the displaced viscera, for the diaphragm was deficient. There was no separate umbilical cord, for the vessels of the cord ran in the wall of the hernial sac directly to the membranes to be inserted near the centre of the placenta. The length of these vessels was 12 cms. The uterine surface of the placenta was much broken up, and into one or two of the lobules there were hæmorrhages. In diameter the placenta varied from 16 to 13 cms., and was about 2 cms. thick. The fœtus showed a large amount of fat in the subcutaneous tissue The limbs were strongly flexed.

(*c.*) A specimen of UMBILICAL HERNIA in the fœtus. The clinical history of the case had been kindly furnished him by Dr Thomas Lawson, who had attended the mother of the fœtus in her confinement. The specimen was the product of her tenth pregnancy. She had only carried three children to the full term, the others had been born before the ninth month, and usually at about the mid-term of pregnancy. In the present case it was calculated that abortion occurred at the 4½ months. She might be said then to have suffered from what is called habitual abortion, and, so far as Dr Lawson was able to learn, there was no suspicion of syphilis. She herself attributed her tendency to abort to the fact that at her first confinement the medical man who attended her was in a hurry, and applied forceps very carelessly. She always had a hæmorrhagic discharge for some weeks before abortion occurred; in this pregnancy it had been going on intermittently for more than a month. Dr Lawson describes her as a "flabby" sort of woman. The fœtus presented by the abdomen, the part felt at the os was the right groin at the spot where the skin was torn. The membranes were ruptured artificially, and a large quantity of grayish-brown liquor amnii escaped. The placenta appeared to be healthy. The fœtus was alive when born, and made lively movement for about five minutes. The child was born independently of the placenta, and was quite separated from it at the time of expulsion. Dr Lawson did not observe at what point the cord had been attached. The fœtus, a male, was 22 cms. in length, and presented a hernia of the umbilical cord which, when opened into, was found to contain the liver. A short fragment of cord was attached to the lower aspect of the hernial sac. The eyelids of the right eye could not be separated, but those of the left could. There was a solution of continuity of skin and subcutaneous tissue in the right inguinal region. In other points the fœtus appeared to be normally formed.

(*d.*) A case of MULTIPLE DEFORMITIES in a fœtus removed by abdominal section from an extra-uterine gestation sac. The specimen had been kindly given him by Dr Brewis, who had performed the operation. The fœtus was 9 cms. in length, and the circumference of the head was 9·5 cms. The head was covered with a whitish non-transparent membrane, and attached to the neck was a piece of thick tissue like sac-wall, which measured 3 cms. by 3·5 cms. Some pieces of fat were attached to the free border of this tissue. Since rupture of the gestation sac had occurred some days before the operation, it was probable that the fœtus had escaped all but the head into the maternal peritoneal cavity, and that it as well as the sac-wall had formed adhesions with the maternal intestines and peritoneum. The right arm of the fœtus was much smaller than the left, and was firmly bound to the side of the thorax by adhesions, the forearm was firmly flexed upon the upper and the hand was curiously contorted, the carpus being dislocated backwards behind the radius and ulna. The left arm was attached to the side by a long thread of membrane. The lower limbs were also deformed; the right leg was bent sharply forwards at the knee, so was the left, and the joints appeared to be anchylosed. Fragments of membrane (probably adhesions to the mother's intestine) were found attached to the lower limbs. The whole body was contorted, the pelvis being twisted to the left on the vertebral column and fixed in this position. Through an opening at the umbilicus protruded some coils of intestine, and probably the cord had been torn off, for the margins of the opening were sharply marked. The umbilical cord was found in the gestation sac.

(*e.*) A specimen of HERNIA OF THE UMBILICAL CORD in a fœtus about the mid-term of pregnancy, which had been expelled with the gestation sac unruptured, and with a diseased state of the placenta supposed to be syphilitic. The liver and intestines were found in the hernial sac, which was formed of the amniotic sheath of the cord and of the peritoneal membrane. The limbs were curiously contorted.

II. *Dr Underhill* showed a specimen of FŒTAL EXOMPHALOS AND ANENCEPHALY.

III. *The President* exhibited a FŒTUS WITH NUMEROUS GRAVE ANOMALIES, which had been sent to him by an old pupil, Dr Edmondson of Ormskirk. The case was one of twins; the first child was well formed and born alive, but there was then hæmorrhage from retention of the placenta. Dr Edmondson on examination found a second child; he delivered the first placenta, and then pulled down what he took to be a leg, but from its deformed character he had some doubt regarding it till he could see the foot. The patient was almost pulseless, and Dr Hanly was sent for; but before his arrival the second child was born. The second placenta was also adherent, and had to be extracted. The mother made a somewhat slow but ultimately complete recovery; she had suffered from bronchitis for some time previously, and was in poor circumstances. The well-formed twin died, when about three months old, from bronchitis. The deformed fœtus, a male, showed numerous grave anomalies. The bones of the cranial vault could be felt to be defective, especially the occiput; the nose was flattened out and imperforate; the ears were represented by small apertures without any external ear, and the eyelids of the left eye were imperfect. The skin of the head passed like a cape on to the upper limbs, leaving only the hands free. The thumb and index finger were absent on both sides. There was a ruptured hernia of the umbilical cord. The lower limbs, like the upper, were much deformed. On one foot there were three separate toes, but one of these was evidently three fused together; on the other foot there were three toes. Both the hands and feet were clubbed. The most marked anomaly, however, was shown by the trunk. The whole fœtus was divided into two nearly equal parts: one consisting of head, upper limbs, and chest; the other made up of pelvis and lower limbs, by a deep constriction a little below the level of the umbilicus. The circumference of the body at the level of the constriction was only 12 cms., whilst at the shoulders it was 32 cms. At the constriction no osseous tissue could be felt. The total length of umbilical cord attached to the body was 51 cms.

In its first portion it formed a sac for some coils of intestine which were adherent to the sac walls, then its vessels ran in a velamentous fashion in the amnion, and thereafter a true cord was formed.

IV. *Dr J. C. Webster* showed a mounted section of the FEMALE PELVIS AT THE BEGINNING OF LABOUR.

V. *Dr Haultain* exhibited a UTERINE POLYPUS from a patient aged 70. The specimen he thought an interesting one from the history of the case. The patient reached the menopause twenty-five years previously, and had suffered no symptoms of uterine trouble till seven months ago, when she had a large amount of hæmorrhagic vaginal discharge. Since that period the discharge has been almost constant, and five similar growths to that shown had been removed. The uterus is still enlarged, and there are evident signs of polypi yet being present.

VI. *Dr J. C. Webster* read his paper on THE ANATOMY OF THE FEMALE PELVIS AT THE FIFTH MONTH OF PREGNANCY, which will appear in a future number of this Journal.

The President remarked on the value of Dr Webster's communication, which did not lend itself much to discussion, but which would prove a very notable contribution to our knowledge of the pregnancy changes in the uterus and the other pelvic viscera. There were many of the debateable points on which this research would give important information. In regard to the lower uterine segment, for instance, this case seemed to confirm the opinion that was gradually becoming established, that the cervical canal did not open from above to receive the ovum during pregnancy, though Dr Webster had indicated that the line of demarcation between the mucous membranes of cervix and uterus was not so well defined as some had been disposed to allege. That the question was not finally answered was shown in a recent paper by Keilman, who from study of changes in the gravid uterus of the bat was able to trace how in that animal the upper part of the cervical canal expanded during pregnancy to receive a portion of the ovum. He (the President) regarded also the observation as to the mode in which the bladder became to some extent denuded of peritoneum as of special value, and thought that Dr Webster's explanation was likely to be correct, all the more if we kept in view the firmer attachment of the peritoneum to the anterior abdominal wall than to the bas fond of the bladder, and remembered how the growing mass of the uterus tended to stretch the abdominal walls outwards and upwards in all their thickness from the striated skin to the tense peritoneal lining. The paper altogether was one of exceptional interest and value.

Dr Berry Hart thought Dr Webster's paper supplied a valuable link in the series of preparations. He himself had never believed in the raising of the peritoneum during pregnancy—it was a labour phenomenon.

VII. *Dr Haultain* read his communication on PEDUNCULATED UTERINE GROWTHS, A RÉSUMÉ OF A SERIES OF CASES, which will appear in a future number of this Journal.

Dr Underhill thought the paper of Dr Haultain a valuable one, from bringing before the Society an interesting series of various forms of polypi. He thought, however, that it rather underestimated the proportion which mucous bear to fibrous polypi. In his own experience he had seen a considerable number of the former kind. There was one point which had not been touched on, namely, that mucous polypi were far more liable to be attended by hæmorrhage when removed than fibrous ones. In fact, a fibrous polypus had next to no bloodvessels in itself; all the blood supply came from the mucous layer which covers them. So far as he knew, the late Dr Hardie was the first to describe squamous epithelium on the surface of polypi. He showed to the Society many years ago a fibroid polypus in the mucous covering of which were found numerous "prickle cells" similar to those found in the skin.

The President quite agreed with Dr Underhill and Dr Haultain as to the risk of hæmorrhage in cases of cervical mucous polypus. He had seen very profuse hæmorrhage after division with scissors of the neck of a comparatively small polypus from the lip of the cervix, requiring the use of strong styptics and plug. On the other hand, the severance of the neck of a fibrous polypus was usually followed by cessation of hæmorrhage. Bleeding, even to a dangerous degree, might have been going on during the gradual separation of the pedicle, but it ceased when by a twist or two the structures were completely torn through. He had seen many illustrations of this, and showed the Society many years ago a large fibroid tumour where hæmorrhage ceased when the pedicle was twisted through, and where the mass, the size of a child's head, had to be afterwards removed from the virginal vagina by cutting into the mass to diminish its bulk.

Dr Brewis had much pleasure in congratulating Dr Haultain on his paper, which he considered most valuable from a clinical and pathological point of view. Errors in diagnosis are frequently made in the case of tumours of the uterus which occupy the vagina, and to prevent such mistakes a careful bimanual examination to make out the attachment of the tumour, and a microscopical one to find out its nature, are essential.

Dr Haultain replied.

VIII. *Dr J. W. Ballantyne* read the sixth of his STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY: A CASE-TAKING SCHEME FOR FŒTAL DISEASES AND DEFORMITIES, which will appear in a future number of this Journal.

The President said that Dr Ballantyne had rendered a real service to the science of this department in drawing up the case-taking scheme. It would prove a most useful guide in recording the conditions associated with individual cases, and so would aid very distinctly in advancing our knowledge of teratology. The scheme seemed to take note of all the important points, and was not unnecessarily elaborate.

Dr Cullen could not suggest any improvement on the admirable scheme which Dr Ballantyne had drawn up. He was glad that there was a special heading for recurrent fœtal disease, as this was a point which was often not sufficiently dwelt upon. He had recently met with a remarkable case of recurrence of the same disease in succeeding fœtuses. Mrs M., æt. 35; married eleven years; nine labours, last being in March 1892. Her first two labours were normal, and the two children are alive and healthy. The following five pregnancies ended in the birth of children afflicted with malignant jaundice, and they survived for various periods ranging from a minimum of a few hours to a maximum of nine days. Her eighth pregnancy terminated at the seventh month with the birth of a child which had been already some weeks dead. The ninth pregnancy went to the full time, and though the infant was deeply jaundiced this condition passed off in a few days without any bad symptom, and the child has so far thrived fairly.

IX. *Dr Brewis* read his paper on A SERIES OF THIRTY CASES OF ABDOMINAL SECTION, which will appear in a future number of this Journal.

Dr J. W. Ballantyne congratulated Dr Brewis on his successful series of cases, and thought that the cases which had terminated fatally would have done so in any one's hands. He had that evening shown the fœtus from the ruptured extra-uterine pregnancy, and he hoped that Dr Brewis would at an early date give the Society a special contribution upon that case, which seemed to be of quite peculiar interest.

Dr Brewis replied.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

CHLORIDE OF GOLD AS AN ANTIDOTE TO SNAKE POISON.—Calmette, director of the Bacteriological Institute of Saïgon in Cochin China (*Arch. de Méd. Navale,* March 1892), from 52 experiments made by him with the venom of the cobra di capello on rabbits, guinea-pigs, rats, fowls, pigeons, dogs, and monkeys, draws the following conclusions:—1. It is possible to cure animals suffering from the effects of snake poison by neutralizing the venom that has been absorbed by the blood, by subcutaneous injections of gold. 2. None of the chemical agents hitherto recommended for the purpose (ammonia, iodine, nitrate of silver, etc.) can have any curative action, inasmuch as they can neither destroy the poison introduced into the wound nor neutralize that which has found its way into the circulation. A partial exception must be made in favour of permanganate of potassium, which has the power of destroying the poison in the wound, though it has no effect after it has been absorbed. Calmette thinks his results are applicable in the case of man as well as in that of animals. The first thing to be done after a bite has been inflicted is to stop the blood-flow through the veins as far as possible with an elastic ligature. From 8 to 10 cubic centimetres of a 1 per cent. solution of chloride of gold should then be injected with a sterilized hypodermic syringe into the wound itself and under the skin around it; but not more than 1 cubic centimetre of the solution should be injected at any one spot, in order to avoid too intense a caustic action on the tissues. Similar injections must also be given at the level of the ligature and between it and the heart. The injections may be given in any part of the body, either into the connective tissue or into the substance of the muscles. They cause neither eschar nor abscess if the solution of gold is triturated at 1 per cent. at the outside, carefully sterilized, and kept in a yellow or black glass bottle, so as to avoid the risk of decomposition under the influence of the sun's rays. The ligature may be taken off as soon as the injections have been given. Calmette thinks it probable that chloride of gold will also neutralize the poison of all venomous snakes, inasmuch as the chemical composition of all of them is, according to Weir Mitchell, practically identical.—*The British Medical Journal*, 23rd April 1892.

According to the *Therapeutic Gazette* many successful cases are recorded in which snake bites were treated by the hypodermic injection of $\frac{1}{10}$ grain of strychnine, which appears to be a valuable antidote in cases of bites by poisonous serpents.

DIAPHTHERIN.—Kronacher (*Münch. Med. Woch.*, May 10, 1892) relates his experience of diaphtherin (oxychinaseptol), while Emerich (*Ibid.*) shows that this drug, even in weak solutions, possesses powerful bactericidal properties, while its toxic properties are slight. Kronacher has used it in surgical practice for more than a year, and mostly in 1 per cent. solution. In cases of ulcers, etc., and as an antiseptic in operations, it has given the desired results. No ill effects have been noticed when it has been applied to large surfaces, as in extensive operations. In a few cases it has given rise to a slight feeling of burning, but this has quickly passed away, and eczema has never been produced by it. Instruments should be placed in some other antiseptic solution, as a black deposit is formed on them if the nickel in them is not pure. Diaphtherin has been especially useful in cases of burns and ulcers of the leg.—*British Medical Journal*, 4th June 1892.

ATROPINE AS A HÆMOSTATIC. — Strizover (*Meditz. Obozrenïe*, No. 6, 1892) reports five cases of profuse hæmorrhage (1 of metrorrhagia after early abortion, 3 flooding of obscure origin, and 1 phthisical hæmoptysis) cut short by hypodermic injections of 1-60th of a grain of atropine. In the abortion case—woman, aged 26, with aortic regurgitation—digitalis internally, cold to the cardiac region, plugging the vagina with salicylic cotton-wool, and intra-uterine injections of tincture of iodine, and later on of perchloride of iron, had previously been tried in vain. After three injections of atropine—one in the evening, another three hours later, and the third in the morning—the hæmorrhage ceased, the patient making a good recovery. A. N. Dmitrïeff (*Vratch*, No. 50, 1891) relates two cases in which atropine acted well as a hæmostatic. One was that of metrorrhagia of a fortnight's standing, the patient having been previously vainly treated by ergot internally, plugging, etc. The bleeding completely ceased after four injections of 1-200th grain of atropine given twice daily. The other patient was suffering from very severe metrorrhagia. Persistent internal administration of ergot and hydrastis canadensis, ice locally, etc., having failed, a syringeful of an atropine solution (0·003 gramme of the sulphate to 10·0 aq. dest.) was injected under the skin. A marked general improvement followed in half an hour. After a second dose, five hours later, the bleeding considerably lessened; and after the third and last (twelve hours subsequently) ceased altogether. Only trifling dilatation of the pupils was noticed in the patients.—*British Medical Journal*, 28th May 1892.

SALIPYRIN.—Argo (*Therap. Monatsh.*, May 1892) says that he has found this drug of much value in several cases of severe hemicrania, in cases of headache after alcoholic excess, in two cases of chronic rheumatism, and in one of chronic gout, and also in influenza. It possesses properties which make it at times preferable either to salicylic acid or to antipyrin. The author uses it in single doses of 1 gram., the total daily amount being 3 gram.—*British Medical Journal*, 28th May 1892.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

PASTA CERATA is another ointment base introduced by Dr Schleich of Berlin, the "final components" of which are yellow bees'-wax and water. It is creamy, salve-like, and smells of honey, is of a bright yellow colour and even consistence. It is antiseptic, and, containing no fat, does not turn rancid. On drying, the pure wax alone is left. Under its influence wounds granulate freely, and quickly cover with epithelium; the surrounding skin, moreover, is never irritated. It can be easily mixed with iodoform, dermatol, sulphur, sublimate, etc., the drugs being brought closely in contact with the open or diseased surfaces, and on drying, what is practically a medicated plaster is formed. On uncovered parts a layer is rubbed slightly on; if necessary, to prevent removal by the clothes, a simple bandage may be applied. It is readily washed off, and does not grease the hands or clothes. The layer of paste should be quite thin, in order to prevent any maceration by retained secretions, but its strength may be improved and increased by covering it with a piece of gauze or thin layer of wadding. It forms an excellent dressing for burns of the first or second degree, for young and recent wounds, dry eczemas, ulcers of the leg, and for the promoting of healing of healthy granulations. It and its preparations can be had from M. Radlauer, Friedrichstrasse, Berlin.—*Deutsch. Med. Zeitung*, 7th Dec. 1891, and *British Journal of Dermatology*, January 1892.

RECENT ADVANCES IN THE ÆTIOLOGY OF DISEASES OF THE SKIN.—In an article on this subject Dr Walter G. Smith remarks: "We are becoming more and more impressed with the conception, one of great importance, that the purely morphological study of bacteria is not the safe guide it was supposed to be in the dawn of bacteriology. A far more weighty point is the degree of virulence, coupled with investigations as to the conditions under which this virulence can be respectively augmented or attenuated. We can easily see why pustular eruptions are common on the heads of children infected with pediculi. The reason is that pyogenic organisms often lurk beneath the nails, or exist attached to the hairs, and hence are readily inoculated by scratching into the little wounds inflicted by the pediculi. Pus, apart from the organisms which it contains, does not exert a pyogenic action. So that, strictly speaking, impetigo contagiosa does not represent a specific entity, because all forms of impetigo are, from their pathogenesis, contagious. Organisms gain access to the skin—1. From without, through the epidermis; and it must be admitted that pus cocci may penetrate into the lymph-channels of the skin through the intact epidermis. The well-known predilection of boils for certain localities—*e.g.*, neck, loins, axilla—is explained by the closely-applied parts of the dress favouring a thorough inunction of infective germs present over these parts, the result of this inunction being rendered correspondingly certain by the presence of the sweat. 2. The infection may occur from within outwards, *i.e.*, from the blood. This is true of only a small minority of cases. Yet it probably explains the occurrence of certain examples of mammary abscess, or of such as happen in the wake of severe cases of continued fever. The relation of lupus and scrofuloderma is an interesting topic. By the latter term is understood an indolent dusky inflammation of the skin, readily undergoing suppuration, the tissue so spongy that it can be scraped away with the greatest facility, and leaving a thin white scar. Unna and Leistikow adopt the theory that scrofuloderma is an affection caused by the symbiosis of staphylococcus pyogenes aureus and bacillus tuberculosis; or, in other words, scrofuloderma represents a case of "mixed infection" by the tubercle bacillus and by the ordinary exciters of pus. According to the predominance of one or other of these disturbers of nutrition will the tissues exhibit a tubercular or a suppurative tendency. The tubercle bacillus thrives best in organs which are readily prone to hyperæmia. The skin, which in most situations is anæmic, does not offer a very suitable soil for the bacillus. It fixes itself generally on parts which are normally hyperæmic, viz., cheeks, nose, and ears. Around a spreading lupus we always find a zone of capillary congestion. Should the tubercle bacillus fail to meet with a persistent hyperæmia in its neighbourhood, then its deleterious action may be arrested, and it becomes encapsuled in a dry, caseous mass. Hence the chronicity and intermittent progress of lupus. Pus cocci, which when they penetrate into normal skin tissue induce active hyperæmia and extravasation, when deposited as secondary elements on a tuberculized soil find a badly-nourished tissue, which does not allow of acute phlegmonous inflammation. Instead of this we get a gummy, gelatinous softening of the tissue, a degeneration midway between the dry caseation of tubercle and purulent softening. Such a tissue would be more easily and completely removed by "scraping," and so, as clinical experience confirms, be less liable to relapse. Sycosis must now, in accordance with Bockhardt's conclusive observations, be divided into three varieties, all parasitic. (*a.*) *Coccogenous sycosis*, due to staphylococcus, the so-called non-parasitic sycosis. (*b.*) *Hyphogenous sycosis*, due to trichophyton, the so-called parasitic sycosis (ringworm of the beard), exists as (i.) superficial, (ii.) deep form. (*c.*) *Bacillogenous sycosis*, due to a parasite named Bacillus sycosiferus fœtidus. In the causation of boils and carbuncles we have to allow for factors other than the mere presence or accumulation of microbes in the blood and tissues, *e.g.*, depression of vitality, general or local, the influence of cold, injury, and individual predisposition; and, in regard to treatment, we must not overlook the influence of the state of the blood—witness diabetes and albuminuria—and the possible modifications of the soil that may be brought about by the state of the digestive organs, diet, and internal medicines, our acquaintance with which is defective. Smith has no faith in the reputed virtues of calcium sulphide in furunculosis, which he places side by side with permanganate of potassium in amenorrhœa.—*Dublin Journal of Medical Science*, January 1892.

MYCOSIS FUNGOIDES.—Drs Stelwagon and Hatch relate two typical cases of mycosis fungoides presenting all the most characteristic symptoms. One was in a Russian woman, aged 43, in whom the disease ran a rather rapid course of nine months; the other was in a farmer of New Jersey, aged 39, and lasted in all a period of twelve years, as it apparently began when he was about 26. The disease may be divided into three periods. In the first there are seen various eruptions, which may resemble urticaria or erythema or erysipelas, or more probably a dry eczema. These, transitory at first, ephemeral and superficial, become little by little red or bright rose-coloured patches, disappearing completely on pressure, more or less itchy, eventually becoming somewhat elevated above the sound skin. This, according to Brocq, is the *eczematiform period,* in which the lesions seem to implicate merely the epidermis and the superficial portions of the derma. They extend more deeply however, the integument becomes affected in its entirety, œdematous infiltrations of a brick-red form either in the centre of the eczema-like patches or at their margins, or primarily on the sound skin. These appear in greater numbers in proportion as the thickening of the skin increases, and as the alterations which it undergoes become accentuated. Thus lichenoid areas develop, which are uneven, irregular, rough, more or less extensive, and which may disappear at one point to form again at another. This characterizes the second stage, or that of *confirmed mycosis.* Almost always the third stage, or that of *tumours,* is reached very rapidly. Some part of a lichenoid patch becomes swollen, forms a more or less voluminous elevation, which is hemispherical, oval, or irregular from confluence of several neighbouring neoplasms. This is most frequently of a bright red, sometimes a dark or purplish red, more rarely a yellowish white. Occasionally such tumours spring primarily from sound skin. They may ulcerate and perish, or become spontaneously absorbed, without leaving any trace or pinkish brown marks, which may be scaly, remain. The three phases may be seen simultaneously in the same patient. There may be a rise of temperature coinciding with the eczematous attacks. In course of time, of a variable, sometimes a protracted duration, the general health, at first good, becomes impaired. There is emaciation, weakness, digestive disturbances, uncontrollable diarrhœa, death by marasmus or some complications. In one of the cases referred to the skin manifestations were made up of a medley of what could at different times be regarded as eczema, erysipelas, leprosy patches, and new growths. There may be fungoid masses and crateriform ulcers in other cases. The disease is most common in males; is an affection of middle adult life. It occurs among all nationalities, is independent of syphilis, tuberculosis, and leprosy, and presents no evidence of heredity or contagiousness. A case of recovery after an accidental migrating erysipelas was recorded by Bazin, and two after the administration of arsenic by Köbner and Geber; but arsenic did no good whatever to those under consideration. The most prominent and common post-mortem lesions are hypertrophy of the spleen and liver, inflammation of one or all serous membranes. In the liver fatty infiltration with concomitant cirrhosis is the cause of the hypertrophy, while hæmorrhagic infarction is common in the spleen. Opinions differ as to the nature of the new growth, though the balance is in favour of the view that it belongs to the granulomata. It seems pretty certain that there are cocci present, but that these are pathogenic is still undecided.—*Journal of Cutaneous and Genito-Urinary Diseases*, January and February 1892; also Brocq, *Traitement des Maladies de la Peau*, p. 547.

OCCASIONAL PERISCOPE OF DISEASES OF CHILDREN.

By John Thomson, M.D., F.R.C.P.E., Extra-Physician to the Royal Hospital for Sick Children; Lecturer on Diseases of Children, School of Medicine, Edinburgh.

Rickets in Australia.—Rickets has recently been the subject of a series of communications in one of the chief medical papers of the Antipodes. From these we learn that, although attention has never been drawn before to the fact, rickets occurs in many parts of Australia to a considerable extent. Dr Turner of Brisbane finds it present in 5 per cent. of his Children's Hospital patients. Occasionally the disease is met with in its severe form, but the great majority of cases are of a mild type. In explanation of the comparative mildness of "Australian Rickets," Dr Muskett of Sydney propounds the ingenious hypothesis that, in a semi-tropical climate, comparatively little animal fat and animal proteid are wanted, and that therefore the use of a diet lacking these elements is not so injurious to children there as it is in colder countries. Dr Turner agrees with Dr Muskett in this, but thinks that importance must also be accorded to the facts, that in Australia the children's surroundings insure for them more sunlight and fresh air, and that after two years of age they are usually better fed than in the old country. Dr Boodle (N.S.W.) and Dr Andrew (Victoria) report cases of marked rickets met with in their parts of Australia.—*Australian Medical Gazette*, July and August 1891, and January and February 1892.

Infantile Scurvy in Australia.—Dr A. Jefferis Turner gives short notes of a distinct case of infantile scurvy, probably the first reported from Australia. The patient, a boy of 21 months, had been fed on "all sorts of food except milk." He suffered from ulcerative stomatitis, chronic diarrhœa, and wasting, and had subcutaneous purpuric spots. Post-mortem, a large sub-periosteal hæmorrhage was found surrounding the right femur. No indication of the presence of rickets is mentioned.—*Australian Medical Gazette*, January 1892.

The Bacillus of Measles.—Drs P. Canon and W. Pielicke have examined the blood of 14 measles patients in the Moabit

Hospital in Berlin, at the suggestion of Dr Paul Guttmann, and they believe that they have discovered the real micro-organism which causes the disease. They found the same bacilli in the secretions of the mouth, nose, and eyes. The organisms vary much in size, the largest being the length of half the diameter of a red blood corpuscle. They can only be cultivated in bouillon, and only first cultures can be made in it; they will not grow in glycerin-agar, blood serum, or human milk. An eosin-methylene blue solution is used for staining them. Their discoverers maintain that they are quite different from any organisms which have been regarded as of importance by other observers.—*Berlin. klin. Wochenschrift*, April 18, 1892, No. 16.

THE SUBCUTANEOUS INJECTION OF SALT SOLUTION IN THE GASTRO-ENTERITIS OF INFANTS.—Demiéville (*Revue Médicale de la Suisse Romande*, 1892, No. 1, p. 54) records a case of grave gastro-enteritis in an infant of 4½ months, in which, as a last resort, when the child was in a state of collapse, he injected 4 or 5 ounces of a solution of chloride of sodium beneath the skin of the thighs. The success of the treatment was striking; no further vomiting or diarrhœa occurred, and the child rapidly and completely recovered. The mode of action of the fluid injected is capable of various explanations. Whatever may be considered the essential causes of diarrhœa in these cases, the sudden introduction of a considerable amount of fluid into the organism must either act mechanically on the walls of the vessels and improve the general circulation, or must directly stimulate the cardiac nerves. In either case the central nervous system receives a more or less powerful impulse, which enables it to overcome the depressing influences of disease, and to stimulate the glandular organs to resume their functions. The technique of the operation is exceedingly simple, and needs no complicated appliances. An irrigator, or any extemporized substitute, to which a new rubber tube may be attached, will do admirably. All the parts must be sterilized by boiling, or by a careful irrigation with sublimate solution (1 per cent.), and subsequent rinsing with boiled water. The needle of an aspirator or a trocar completes the apparatus. A litre of 6 per cent. sterilized salt solution is prepared, somewhat warmer than is required, in order to make up for loss of heat while passing through the apparatus (say 42°–45° C.), and the injection is made slowly under the pressure gained by an elevation of 4–5 feet. The author believes that subcutaneous injections of salt solution will be found of inestimable value in many cases of extreme depression in the acute diseases of children, where the organism only needs to be tided over a few days until its own reparative forces can again assert their supremacy. In the exhaustion attendant upon severe diphtheria, he thinks that life might often be saved by recourse to this method of treatment.—*International Journal of Med. Sciences*, April 1892.

Part Fifth.

MEDICAL NEWS.

Royal College of Surgeons, Edinburgh.—The following gentlemen having passed the requisite examinations, have been admitted Fellows of the College since last publication:—Albert Edward Davis, L.R.C.S. Edin., Liverpool; John Bark, M.R.C.S. Eng., Liverpool; Charles Edward Bean, M.R.C.S. Eng., Plymouth; William Thomas Crawford, L.R.C.S. Edin., Edinburgh, and James Alexander Greig, L.R.C.S. Edin., Greenock.—Simeon Snell, M.R.C.S. Eng., Sheffield, was admitted a Fellow of the College without examination. The following gentlemen having passed the requisite examinations, were admitted Licentiates of the College:—Ernest Kingscote, Clifton; David Charles Morgan Lunt, Denbigh; William Esplin Lamond, Aberdeen; William Isaac Fern, Macclesfield; James Crooks, Toronto, Canada; Frederick Norris Burwell, Lincolnshire; James Crawford Gibb Macnab, Shotts; Francis James Spilsbury, Salterton, and James Adie Menzies, Edinburgh. The following gentlemen having passed the requisite examinations, received the Diploma in Public Health of the College:—Francis Wyville Thomson, M.B., C.M., Linlithgow; Benjamin George Brock, L.R.C.P. & S.E., Edinburgh; Arthur Bowdich Cottell, F.R.C.S.E., Chatham; Thomas Herbert Littlejohn, M.B., C.M., Edinburgh; Sampson John Rodger Greville, M.R.C.S. Eng., Edinburgh, and Louis Demetriadi, F.R.C.S.E., Huddersfield. The following gentlemen having passed the requisite examinations, were admitted Licentiates in Dental Surgery of the College:—William Guy, Kent; Frederick John Turnbull, Edinburgh; William Williams, Beaumaris, and Thomas Evans Johnston, Carnbee, Fife. The Pattison Fund Prizes in Practical Anatomy have been awarded by the College for the year 1891–92 as follows:—*First Prize* (£25), Miss Elsie Maud Inglis; *Second Prize* (£10), Miss Grace Haxton Giffen, both of the Edinburgh Medical College for Women, Chambers Street; and *Third Prize* (£5), Miss Jessie MacLaren Macgregor, of the Edinburgh Medical School for Women, Surgeons' Square.

Medical Medals.—Dr Horatio R. Storer of Newport, R.I., U.S.A., is employing the well-earned leisure of an active old age in researches on this interesting subject. Nothing is better for a medical man, or any other man, than a quiet, safe, and interesting hobby horse. It may be that some of our readers may be interested in the subject, and could either give information to Dr Storer, or perhaps add to his collection and their own by exchange and barter. Dr Storer's classification is the following:—"(*a.*) Personal Medals. (*b.*) Those of medical colleges, hospitals, and professional societies. (*c.*) Those commemorative of medical events. (*d.*) Those signalizing epidemic disease. (*e.*) Medico-ecclesiastical medals. (*f.*) The tokens of pharmacists, dentists, and irregular practitioners. For exactness' sake I have carried the above classification still further, and have subdivided personal medals into—1. Medals struck with sole reference to commemorating the individual. 2. Medals commemorating with the individual a medical college. 3. Medals commemorating with the individual a medical society. 4. Medals commemorating with the individual a hospital. 5. Medals conferred upon special physicians by a medical college, society, hospital, or other organization for medical or surgical relief. 6. Medals conferred upon special physicians from other sources for medical (or collateral) reasons. 7. Medals conferred upon non-medical persons for medical reasons. 8. The medallic cards of physicians supposed to be in good standing. In the same way, when describing the medals and tokens of sanitation, I have considered them under the following groups:—1. The general subject; 2. Water supply; 3. Bathing; 4. Mineral springs; 5. Drainage; 6. Sewerage; 7. Ventilation; 8. Diet; 9. Famines; 10. Epidemics; 11. Military and naval hygiene; 12. Climate; 13. Registration; 14. Life insurance; 15. Hospitals. In strictest numismatic usage, medals are not considered as such unless in whole or greater part they are struck from dies. Therefore those that are merely engraved could not be included in a systematic list. Upon the other hand, it would be wrong to exclude from an enumeration like the present the medals of scientists possessing the medical degree, or known to have pursued the study of medicine, who had yet not been actively or exclusively engaged as practitioners. Goethe, Agassiz, and Pasteur, John Howard, and Kane are instances, where the highest renown has thus been conferred upon our profession."

THE HARVARD MEDICAL SCHOOL ASSOCIATION has issued an interesting and valuable list of its members, which it will be glad to send to graduates of the Medical Department of Harvard University, in whatever part of the world they may be. The Association was formed about one year ago, and *all* graduates of the School are eligible to membership. The object is to unite all alumni and to advance the interests of the School and of medicine. The entrance fee and the annual assessment are merely nominal.

THE following quotation is said to be extracted from an ancient Hindoo work:—"The small-pox produced from the udder of a cow will be of the same mild nature as the original disease. . . . The pock should be of a good colour, filled with a clear liquid, and surrounded by a circle of red. . . . There will only be a slight fever of one, two, or three days, but no fear need be entertained of small-pox so long as life endures." This apparently antedates Jenner's discovery of vaccination many hundreds of years.

ACCORDING to a telegram from Bombay, Surgeon Captain Patrick Hehir, of Hyderabad, has found polymorphic infusoria in the blood of cholera patients, and has made some further discoveries of organisms in patients suffering from malaria.

SURGEON CAPTAIN PATRICK HEHIR sends us an historical note on cholera. In it he says that at the beginning of the year he found an old book, *The Madura Country*, by J. H., Madras Civil Service. It has usually been stated that the first authenticated outbreak of cholera in India took place in the Marquess of Hastings' camp in Jessore in 1817-18. In the book just alluded to, however, Dr Hehir finds evidence which he believes proves that cholera was well known in the kingdom of Madura in 1609. According to a letter written by Robert D. Nobilibus, dated Madura, April 22, 1609, the disease was called Mordichien. He further points out that the Portuguese of Goa called cholera by the name of Mordichien so early as 1563, and he thinks that the word, which is really "mort de chien" (a dog's death), was a corruption of the Mahratta word "Modshi." The treatment of cholera by Father Martin in 1701 was curious, to say the least of it. "When the patient was in a state of collapse Father Martin applied the back of a heated sickle to the soles of his feet, until 'le fer pénétrant ses peaux moites, qui sont dans les noirs extrêmement dures, parvînt jusqu'au vif et se fît sentir au malade,'" and the patient having felt the hot iron forthwith began to recover. But, as the missionary naively remarks, "in some cases patients do not feel the hot iron, and such cases are almost hopeless." Dr Hehir concludes as follows:—"It would appear to me that in searching for the earliest seats of cholera the sea coasts of India ought not to be entirely disregarded. It is by no means improbable that cholera has been for centuries, at least, both endemic and epidemic in more parts of India than Lower Bengal."

DR FRANKLIN EMINSON, medical officer of the Scotter District of the Gainsborough Union, sends us a pamphlet on *Epidemic Pneumonia at Scotter.* The disease seems to have been caused by emanations from foul sewers and soil. The special virulence of the epidemic which occurred in 1890 was probably caused by the prolonged dry weather, more particularly in the month of April; also by the good fall of the sewer causing a constant outdraught from the outfall to the untrapped inlets, and especially the higher inlets, for which reason, too, in absence of efficient rains, the liquid portion of the contents dried away, leaving the sediment to ferment and become surface-dried. He concludes that the pneumonia seen in this district is a preventable disease. Medical Officers of Health should read Dr Eminson's interesting brochure.

WYETH'S BEEF JUICE.—We have received from John Wyeth & Brothers a specimen of their "Beef Juice," and having carefully examined it, can confidently recommend it to the notice of the profession. It is a reddish-brown liquid, and of all the meat preparations with which we are acquainted it is at once the most palatable and most pleasant to the taste. It is at the same time very nutritious, and only requires to be known to be extensively used in cases of debility and during convalescence from acute diseases.

OBITUARY.

PHILIP WHITESIDE MACLAGAN, M.D.

> "By two wings man is lifted from the things of earth—Simplicity and Purity. Simplicity must be the keynote to his motive; Purity the keynote to his love. His motive aims at God; his love embraces and enjoys him."
>
> THOMAS À KEMPIS.

"Have you read *The Autocrat of the Breakfast Table?*" said Philip Maclagan once to me, as together we strolled down one of

Berwick's quaint though quiet streets, and on my answering I had not, he urged me to make forthwith the acquaintance of that most charming of books. In it its talented author strikes a chord which finds a response in every thoughtful breast when he treats of the three Johns. The real John, known only to his Maker; the ideal, John's conception of himself; and the apparent, that familiar to the outsider. The semicircle described by every human life, from its emergence into sunlight to its earlier or later setting, can only coincide with that traced by another existence during a portion of its course, the radii of each crescent varying so greatly. Thus the estimate made by one individual of the true character of another is necessarily imperfect, as being drawn from a more or less incomplete observation. Yet in few men, probably, was the relation between the real and the apparent closer than in Philip Maclagan. The writer of this sketch enjoyed the inestimable advantage of being in some degree within the range of his influence for more than a quarter of a century, and for no inconsiderable part he lived in the most intimate contact which residence, mutual friendship, and aims can afford. No one knew Philip Maclagan without being the better of it, for seldom has a purer, a holier, or a more Christ-like physician walked God's earth than he. To him, as to his distinguished father, the words of Dr John Brown are equally applicable: "This good old man, who never made an enemy and never lost a friend—the valued family doctor." And yet one cannot think of Philip Maclagan as old, nor indeed was he, for his heart was as warm, youthful, and sympathetic as ever when he passed calmly to his well-earned rest, conscious to the last, on the 25th May 1892, at the close of his seventy-three years of earthly life.

Philip Whiteside Maclagan was the second son of Dr David Maclagan, Physician to the Forces and Surgeon to the Queen, and thus came next, though at an interval of several years, to our veteran evergreen Sir Douglas Maclagan. Born at Edinburgh on the 9th October 1818, he was educated at the High School, and was one of those who took part in the memorable procession from the old High School in Surgeons' Square to the classic building on the Calton Hill,—an event now becoming a matter of history to all but a rapidly lessening number. He in due time entered the University, and graduated in Medicine in 1840. Students are apt to despise botany, regarding it as a useless encumbrance of no practical value, yet the "Divinity who shapes our rough hewn ends" was in Dr Maclagan's case the mythical Goddess of Flowers. Dr George Johnston of Berwick-on-Tweed, whose house there was redolent of natural science, communicating itself by a species of mild contagion to all who came within its walls, had intimated to a friend in Edinburgh that he would be glad to present a copy of his *Flora of Berwick* to any young botanist who would send him a score of British plants not named in that charming little book. To this Philip, then a lad, at once responded by contributing fifty accompanying the specimens by some remarks, which must have forcibly attracted Johnston's attention. They led, in fact, to an interchange of letters, followed by an invitation to his youthful correspondent to pay him a short visit. This was repeated at holiday times, and, as will be seen, the intimacy thus begun had eventually the effect of moulding Philip Maclagan's future life,—so slight and apparently insignificant may be the hidden impulse which acts at times on any one of us for good or evil.

The military atmosphere in which they were reared could not fail to exert an influence on Dr David Maclagan's sons, and in fact four of the seven held the Queen's commission for a longer or shorter period. Philip became Assistant-Surgeon in the Canadian Rifles, and in 1847 married Margaret, the second daughter of the friend he had made in Berwick. This accomplished lady inherited her father's love for science, and was the translator of Meyer's *Grundriss der Pflanzen-Geographie* for the Ray Society. Throughout all her wedded life she retained her early attachment to botany and natural history, and impressed upon her children how much innocent pleasure and instruction were within their reach from the observation of Nature. She accompanied her husband to Canada, and there in the intervals of his medical duties Philip occupied himself in collecting plants which were added to the herbarium, now containing several thousand specimens, otherwise the joint collection of Sir Douglas and his son, the late Dr David Philip Maclagan, R.N. After some years' service in the colony, Philip was transferred to the 20th Regiment, which was ordered home to England, and stationed at Winchester. But the position of Assistant-Surgeon in a regiment at home to a married man with three children did not hold out strong inducements to remain in the army. Dr Johnston, finding his health not entirely satisfactory, offered him, on his return to this country, a share in his long-established practice, with the prospect of succeeding him; and though the old Peninsular officer, his father, was unwilling that he should resign, Philip, after considerable deliberation, determined to accept the proposal, and in 1853 settled permanently, as it turned out, in Berwick. It was well he did so, for the country was almost immediately after involved in the Crimean war; and this engaged in, his services at the front could hardly have been dispensed with.

Philip at first lived in the Woolmarket, a few doors from his father-in-law. Next house to him dwelt a cranky old lady who was for a time the plague of his existence, for among other annoyances she thought nothing of ringing up the weary doctor during the dead of night "for the loan of a postage stamp!" On Dr Johnston's death his widow continued to occupy his house, but Dr Maclagan, his family having by this time outgrown the accommodation, removed to Ravensdowne, and ever after lived in a house built by a former well-known physician of Berwick, Dr Kellock. It was erected out of a single fee, when such handsome ones were sometimes to be had, in the halcyon days of the country practitioner, before railways and the facilities they afford of consulting the fashionable city oracle were invented. Dr Maclagan not only kept together his partner's practice, but largely extended it, and for the rest of his life had the largest share of medical work in the district. That this success was due to ability of no mean order is certain, but it was enhanced by a peculiar and attractive charm of manner, a gentle amiability which found expression in every tone and gesture, and shone conspicuously in his winning smile, which never failed to impart encouragement and hope. This mildness of character led to an idea expressed by some, that there was a want of firmness in Philip Maclagan. Perhaps in directing his patients he allowed himself, out of his tender consideration for their feelings, to use the form of speech "you may," rather than "you must." But there was no vacillation, and the best proof of this is the esteem in which he was held, and the confidence which was reposed in him, by his fellow-practitioners within a wide range, shown by the fact that in every case of difficulty his aid was summoned and his advice sought and followed by every medical man without exception.

His soldierly training left its impress in his scrupulous neatness in dress, always strictly professional, in his erect carriage, and in his quick and agile walk. A member of the Free Church of Scotland, he associated himself with the United Presbyterian body in Berwick, mainly because his wife belonged to it; but he was no bigot, his sympathies were thoroughly catholic in the best sense of the term. After his wife's death, which happened in 1874, the devotional side of his nature, always strong, became more pronounced. He was attracted by the movement set on foot by Mr Moody, and countenanced the efforts made by the Salvation Army, out of a conviction that by these means a stratum of society largely outside the pale of the Protestant Churches might to some extent be reached, and inspired by this idea he laboured earnestly and hard to bring the wanderers in.

In many other ways he exerted himself to benefit his fellow-townsmen. Along with the late Mr John Scott, the Rector of the Berwick Corporation Academy, he took an active part in the establishment of the Berwick Museum, and no Saturday evening lectures there were listened to by larger or more appreciative audiences than his. Whether he discoursed of the vagaries of the Anacharis alsinastrum, first spotted in a pond at Duns by Dr Johnston, or described in vivid language how the egg of the fowl developed into the chick, he reached the intelligence of all by his lucid explanations.

Though seemingly in his usual health, a chill caught in the middle of May very rapidly became a pneumonia. He was watched with anxious care by Dr Thomas Fraser, by his son and brother, but it was not to be. His funeral was the largest seen in Berwick for a long time, and even the elements appeared to mourn his loss,—a thick, cold mist lay over the old Border town and veiled the sun. It was Berwick Fair day, and the parade was full of shows, but these were all closed and silent. It had been his habit to invite the show people annually to tea, and to address to them some words of counsel. After their own fashion they showed their regard and regret. In all the silent crowd which lined the Berwick streets, not one, we believe, but felt that he or she had seen the last of a personal friend. It was perhaps merely a singular coincidence, but his last Bible reading was on humility.

We have lingered possibly too long over this sketch, fondly adding another touch to what is at best but an imperfect portrait. It may serve, however, to recall to those who knew him some traits of his character, to convey to those who did not, some faint conception of what he was. The lines from the *Imitation of Christ* which we have placed at the head reveal, as well as human words can do, the secret of the life of the good and gentle Philip Maclagan.

DR HENRY CHARLES GORDON.

Many in the profession will have heard of the death of Dr Henry Charles Gordon with very great regret. On graduating in medicine in Aberdeen, he entered the Army Medical Service, and about eight years ago went to Sierra Leone. Here he had his share in the small frontier expeditions against the neighbouring tribes, and more than once received the high praise of the commanding officer. Latterly he also held the post of Resident Magistrate. In 1888 he devoted his periodical leave of absence to working in the Public Health Laboratory of the University of Edinburgh with a view to the degree of Bachelor of Science. His cheerful manner and courteous bearing made him a great favourite with his co-workers. On his return last year to this country Sir Joseph Fayrer pronounced him suffering from aortic mischief, and recommended rest and no return to Africa. But Gordon was a man of action, and after resting a little, resumed study, took his degree in Public Health, and passed his promotion examination for the army. Much was hoped by his friends from a voyage to Australia, but this was more than counteracted by a severe attack of influenza. Ordered to the front immediately after his return to the Gold Coast, the fatigues of the expedition broke him down, and made it advisable for him to return home. But this was not to be, and three days after sailing he died off the African coast on 30th May, at the early age of 36 years. For the last two or three years he suffered much, but never complained, and with his brave, kindly soldier's heart, he was the first to console with any of his friends in sorrow.

Part First.

ORIGINAL COMMUNICATIONS.

I.—HYSTERICAL PYREXIA.[1]

By J. O. Affleck, M.D., Lecturer on Practice of Physic and on Clinical Medicine, Edinburgh Medical School; Physician to the Royal Infirmary, Edinburgh.

Among the innumerable manifestations of hysteria or the hysterical state, abnormal conditions of the bodily temperature have from time to time attracted the attention of physicians. Febrile movements of sudden and startling amount have been noticed, and extraordinary readings, such as 110° F., 112° F., or more, have been recorded. These have been received with distrust from the fact, which seems undeniable, that in some such instances tampering on the part of the patient with the thermometer has been detected or confessed. Nevertheless it is certain that not all such cases are of this fictitious character, but that observations made with the greatest care, and in such a way as absolutely to exclude deception, have proved the fact that there occasionally occur in hysteria extreme degrees of temperature elevation. In such instances, however, it is most noteworthy that the thermometric reading of a hyperpyretic point has not the same significance which it possesses in acute organic disease; and that whereas in rheumatic fever, pneumonia, typhoid fever, etc., such extreme rises of temperature are almost always quickly fatal, it is far otherwise in hysteria. Nor does the difference seem to be at all adequately accounted for by the transient character of this symptom, but in all probability depends on other conditions to be subsequently referred to as characterising the mimicry of disease so usual in the hysterical. Leaving out of view, however, for the present these sudden and phenomenal temperature ranges, I would seek to draw attention to the occurrence of a persistent febrile temperature of more or less continued type, of obviously neurotic origin, occurring as a symptom of hysteria, and accompanied with other febrile phenomena, yet with a striking absence of some of the most cardinal features of a true pyrexia.

K. S., single, æt. 27, was admitted to Ward 28, Royal Infirmary, on 8th December 1891, complaining of headache, pain in the stomach, vomiting, with occasional hæmatemesis. The patient had twice previously been under my care in the hospital for similar complaints, but on neither occasion had any urgent gastric symptoms been observed while she was under treatment, and she left after short periods apparently well. She occasionally came as an out patient, and always complained of stomach troubles, several times alleging that she had vomited blood, the quantity stated being generally "about a teacupful." On the last occasion, however, the amount was said to be about "two bowlsful" of dark red or brown colour. The vomiting was preceded by pain in the stomach, and there had been loss of appetite and feebleness for several months prior to her admission.

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[1] The substance of this paper was given as a Clinical Lecture in the Royal Infirmary.

The patient on examination was noticed to be slightly anæmic, but there was not the pallor indicative of extensive loss of blood. She had a contented although somewhat languid expression, and there was no appearance of suffering. She was tolerably well nourished. Her tongue was large, dry, and coated with a thick yellowish fur; the appetite was poor. Physical examination of the abdomen revealed no tenderness in the epigastrium or elsewhere, and all the abdominal organs seemed healthy. There was, however, obstinate constipation. Menstruation had for some time past been slightly irregular, a period being occasionally missed.

None of the other systems of the body on careful examination showed any abnormal condition whatever.

On her admission the patient was ordered to be kept in bed, and placed upon a very light diet. Instructions were given that anything vomited should be kept. No vomiting, however, nor any other gastric symptom appeared, and the only point which attracted attention was a rise of temperature which began to show itself three days after the patient came to the Infirmary, and continued to occur each day. There was an ascent to 101°, occasionally to 102°, and a descent again to normal, these rises and falls being at irregular intervals, the maximum sometimes in the morning, sometimes in the evening. Only once or twice two days elapsed without any rise of the temperature at all. Observation of these temperature fluctuations led to frequent examinations of the various systems of the body with a view of finding an explanation, but the result was wholly negative. The pulse was normally under 100, and did not appear to bear any close relation to the temperature, but the respirations were almost always rapid, varying from 30 to 50 per minute.

These symptoms continued for about five weeks (till the middle of January 1892), the temperature being taken morning and evening, but now a four-hourly observation began to be made. For a week the temperature always exceeded for some part of the day 102°, and on one occasion it rose to 104°. Some strange phenomena were observed during this period. On the evening of 17th January, about 8 P.M., the temperature was found to be 105°·2. At 12 o'clock it suddenly fell to 97°, and with this there appeared a copious urticaria rash over the trunk and arms. By 2 A.M. on the 18th this eruption had disappeared, and the temperature then quickly rose to 103°, and subsequently 104°. The duration of these high points was apparently short, since when the temperature was again taken, say within an hour, a lower reading was registered. Still at no time during the greater part of the month of January was the temperature normal when taken either by day or night. About the end of January a change began to be noticed, namely, the daily rises of temperature to 103° or more alternating with rapid falls to subnormal (97°), the duration of these being nearly equal, and this continued during the remainder of the patient's stay in the Infirmary—the maximum, however, gradually tending to assume a lower point (101°). Even up to the day of her dismissal (on 28th April 1892) the temperature was never an entire day without some marked irregularity. It would unduly prolong this notice to give details of the fluctuations of the temperature from day to day, or even from week to week, but one remarkable occurrence deserves to be recorded. On the evening of February 16th, the temperature at 8 o'clock was found to be 106° in the right axilla. The resident physician, Dr John Orr, was sent for, and at 8·15 made personally the following observations simultaneously with three thermometers: in mouth, 109°·6; in right axilla, 108°·8; in left axilla, 107°·6.

The patient made no special complaint beyond a slight sense of shivering and thirst. The pulse was 100, and the respirations 22. The temperature fell as follows:—

	Mouth.	Right axilla.	Left axilla.	Pulse.	Resp.
	°	°	°		
10 P.M.,	105	106·6	106	94	30
2 A.M. (on 17th),	100·2	100·6	100·8	76	24
4 A.M.,	96·6	97	97·4	72	36
6 A.M.,	97·4	97·4	98·2	84	36

This was the only occasion when any marked difference was observed between the temperature at different parts of the body. Occasional observations were made of the rectal temperature, but any difference was merely fractional. The temperature at no time appeared to be influenced by the use of antipyretic remedies, of which ample and repeated trial was made.

During all the period of the patient's stay in the Infirmary, notwithstanding these daily febrile manifestations, she seemed to suffer little or none in her health. Her bodily condition kept up, and her weight increased very markedly, as she gained progressively over a stone (shortly after admission her weight was 7 st. 10 lbs., on leaving the Infirmary 9 st. 4 lbs.) Her diet, although light, consisting of fish, chicken, milk, vegetables, bread and butter, etc., was ample in quantity, and her appetite was good. Frequent examination of the urine showed the amount of urea excreted to be perfectly normal. There was no marked disturbance of the circulation as a rule, the pulse very rarely rising to 100. It varied considerably, however, and was in no apparent ratio to the temperature. Its average was somewhat over 80. The respirations showed much increase, the rate varying from 30 to over 50 per minute. It was most noteworthy, however, that in sleep the patient invariably breathed at the ordinary rate of 18 to 20 per minute.

For a considerable time after her admission this patient's condition puzzled me greatly. The temperature-curves were somewhat suggestive of typhoid fever, and tongue and pulse-rate seemed to point in the same direction, but her look was wholly against it. The next view was the possibility of its being a case of acute tuberculosis, to which some probability was lent by the markedly irregular course of the temperature, the accelerated breathing, and the occasional recurrence of copious perspirations. A careful and repeated examination of the chest, however, revealed absolutely no morbid condition there, and the same was true of all the other organs

The considerations which led me to adopt the view of the probably neurotic origin of the symptoms were the remarkable absence of *illness* in the patient, such as one might reasonably have expected to find where a daily high temperature had existed for six or eight weeks, and especially a degree of self-consciousness in the demeanour of the girl which became more and more apparent as time went on, taken in connexion with certain events recalled from her previous history when she was under my care before. She described with great accuracy of dates various attacks of hæmatemesis which she alleged to have occurred during several years past, and for some of which she had come into the Infirmary for treatment; but not only was there never any occurrence of this kind while she was in the hospital, but there was a conspicuous absence of all gastric disturbance. It was recalled, too, that on several occasions previously the patient had presented herself at the Infirmary with the whole front of her chest raw and discharging from cantharides blisters which she had applied with the alleged object of relieving her stomach pain. I had remarked on each of these occasions how singularly free she was from all evidence of suffering, and how pleased she seemed to be with the heroic measures she had of her own accord adopted. Moreover, during her present stay in the hospital there have been on several occasions manifestations of hysterical excitement on trifling provocation.

In seeking for an explanation of the temperature phenomena by hysteria it is natural to consider whether it is consistent with what we already know of merely functional disorders of the nervous system—that that condition should produce a clinical history so strikingly uniform as this. That the bodily temperature occasionally in hysteria suddenly rises to very high degrees is now well known, but it has not until recently been so generally recognised that there may be febrile manifestations of a more or less continued and regular type occurring as pure neuroses.[1] Wunderlich records a case which, as regards the continuance of the high temperature, the occasional appearance of urticaria, and other symptoms, strongly resembles that now described, and which lasted for over a year.

But an interesting question is suggested by cases of this kind—namely, Are these hysterical high temperatures examples of true pyrexia, and are all the conditions constituting a genuine fever present? Evidently not, at least not in all cases. I am not aware that we can have a true example of fever which does not show a wasting or consuming of the tissues of the body, solid and fluid, and a marked increase in the amount of urea excreted. Yet in K. S. we have a tolerably persistent daily high temperature with no wasting, but on the contrary increase in body weight, and all the appearances of comparative health. In accounting for this anomalous condition, it seems not unreasonable to hold that in the pyrexia of hysteria we have some of the symptoms of fever detached and set forth independently, while the essential ones are not manifested at all. In other mimicries of hysteria it is often the more evidential symptoms of a malady (the symptoms which first impress) that come to the front, while the more occult, but at the same time more important elements in a morbid process are not produced. This is well seen in such a condition as hysterical paralysis, where one may sometimes see many of the symptoms indicative of a transverse myelitis continued over a lengthened period with few if any of the trophic disturbances which are never absent from a genuine case. So in hysterical aphonia, hysterical anuria, and, in fact, in almost all hysterical conditions.

It is, indeed, difficult to find any satisfactory explanation of the heat anomalies in hysteria. It might be held that there may be excessive and irregular heat discharge without any necessary, or at least proportionate increase in heat production, or that the heat discharge may be unequally distributed both in time and place—great at one period, abnormally little at another; and high in some areas of the body, low in others. In any case, the essential clinical features of a true fever are absent—the nutritive changes and loss of weight.

In a highly interesting and valuable communication, "De la fièvre hystérique," by M. Boulay, in the *Gazette des Hôpitaux*, 25th and 27th December 1890, which has come under my notice since commencing this paper, a comprehensive account is given of the whole subject in its clinical and pathological aspects, founded upon recorded cases of many observers, of which a good bibliography is furnished. M. Boulay describes two groups of cases, viz.:—

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[1] Briquet in his treatise on Hysteria recognises the existence of hysterical fever of continued form. Briand and many other French authorities describe a similar condition. Debove gives an account of a case of hysterical fever lasting three years, and Barié describes a similar example.

1. Those where the pyrexia is the leading or only symptom.
2. Those where along with the fever there are phenomena simulating more or less closely visceral affections,—*e.g.*, typhoid, meningitis, peritonitis, etc., this class being by far the larger of the two.

Confining attention at present to the first of these groups, with which the case now under consideration corresponds, it is interesting to note that the general description given as the result of all the recorded observations agrees in every main particular with that now presented of the patient K. S.:—"Dans tous les cas de ce genre, la fièvre est caractérisée par son extrême irrégularité; il n'y a pas deux tracés thermographiques se ressemblant. La marche est tantôt continue, avec ou sans exacerbations vespérales, tantôt rémittente. Pendant quelques jours, elle peut prendre le type intermittent. . . . La durée est très variable: elle varie de quelques semaines à plusieurs mois ou même plusieurs années. Dans tous les cas, la défervescence se fait brusquement, et sans crise: le sujet est guéri du jour au lendemain. Les phénomènes généraux n'offrent rien de constant. Tantôt, ils sont presque nuls et la langue reste humide, tantôt, il y a un véritable syndrome fébrile: il y a du malaise, de la courbature, de la céphalalgie, un état saburral des premières voies digestives, sans que, d'ailleurs, ces signes soient toujours en rapport avec l'intensité de l'hyperthermie. De même les sueurs, l'accélération du pouls, la sensation de chaleur sont souvent en désaccord avec le degré de température. Il semble qu'il y ait alors une dissociation des éléments qu'on est habitué à voir constituer le complexus fébrile. Mais ce qu'il y a de plus remarquable, c'est l'absence d'amaigrissement. Ce phénomène, déjà signalé par M. le professeur Debove, a été noté également par MM. Barié et Fabre."

As explaining the pathology of this condition, M. Boulay refers to the cerebral thermic centres of Eulenberg, Landois, and others, but especially to their more precise localisation by Aronsohn, Sachs, Ott, and Girard, who describe certain areas in the neighbourhood of the corpus striatum, optic thalamus, and at the point of decussation of motor fibres in the medulla, excitation of which stimulates the production of heat; and to two other areas in the cortex near the posterior extremity of the fissure of Sylvius, of which the excitation produces depression or loss of heat, the former centres being thermogenetic and related largely to the muscular motor paths—the latter being thermotaxic or inhibitory. He regards the phenomena of hysterical fever as depending upon a functional paralysis of these latter centres rather than to an over-stimulation of those concerned in thermogenesis. In any case the heat equilibrium is disturbed, and pyrexia is the result; and he points out that such disturbance may readily be made in hysteria with far greater precision and limitation than the disturbances produced by experimentation or even by disease.

Although, then, the purely neurotic nature of the case of K. S. appears scarcely to admit of doubt, I do not lose sight of the possibility that there may be something else of more serious significance underlying the condition. In other words, that the hysteria may, as we know it sometimes does, mask some grave organic disease either existing or impending. It was, indeed, mainly for this reason that I did not yield to the temptation to treat the special symptoms by ignoring them, and to refrain from taking temperature and other observations, lest the phenomena might after all be largely due to or greatly aggravated by suggestion. I have rather continued to observe the case with the view of confirming the diagnosis, and I confess the belief in its accuracy gains strength from day to day.

In the treatment, too, of this patient I had from the first a strong desire to resort to hypnotic suggestion as a therapeutic measure, according to the practice now largely pursued, especially by French physicians, in hysterical cases. It is interesting to know from the observations of Debove, Dumontpallier, and others, that the temperature can be thus influenced, although apparently much more readily in the upward than in the downward direction.

I have hitherto, however, directed the treatment to the patient's general health, for it is always to be remembered that in a large number of instances hysteria is an indication expressed through the nervous system of a general nutritive disturbance or depression; and by an endeavour to bring all the functions into healthy action, to raise the level of her physical strength.

The result would seem to show that the plan is the right one, since not only is there a progressive increase in body weight and improvement in appearance, but there is an obvious tendency in the more prominent hysterical symptoms to pass away. The temperature disturbances, although still existing to a certain extent, are greatly less marked and of shorter duration (they may now be absent for days together) than at any time during the period the patient has been under observation.

The points I would desire to emphasize in this case are:—

1. That there may exist over a lengthened period cases of daily rises of bodily temperature, very misleading from their closely simulating the symptoms of organic disease, and yet wholly dependent upon disturbed nervous influence (hysteria).

2. That a careful observation of such cases, including regular weighing and frequent urea estimation, will probably bring out the fact that no excessive tissue waste is in progress.

3. That there will usually be found, on careful observation, other symptoms, or a history, pointing to hysterical neurosis.

II.—THE LATEST WORK ON DYSPEPSIA.

By A. Lockhart Gillespie, M.B., M.R.C.P.E., Medical Registrar, Edinburgh Royal Infirmary.

Science is rapidly replacing empiricism in the treatment of gastric disorders, and every month sees some new procedure for gaining new and more accurate knowledge of the processes which go on in that viscus in health or disease. Not only are new methods advertised, but clinical evidence also accumulates with regard to those which have reached, what we might call, the age of puberty.

The different tests devised by Ewald and others to demonstrate both the motility and digestive power of the stomach have lately attracted a good deal of attention, both in this country and abroad. As salol splits into phenol and salicylic acid only in alkaline or neutral media, and as it is not absorbed until this action has taken place, Ewald and Sievus proposed to make use of the drug as an indicator of the length of time during which food remained in the stomach. Under normal circumstances, they found that salicylic acid could be found in the urine in from three-quarters of an hour to one hour and a quarter. They concluded, however, that to perform the test properly, the salol should only be given when the stomach contents have become markedly acid,—that is, an hour or an hour and a half after meals. It was soon found clinically, however — Kullmann (1),[1] Brunner (2), Decker (3), Leo (4), Pal (5), and Rodczjewski (6)—that although in cases of dilated stomach, especially where the pylorus was much contracted, the salicylic acid did not appear for a considerable time, yet the variations in health were so great as to preclude any useful deductions. More particular statements as to the reactions in health and disease were made by Wolff (12), who found the normal limit to be an hour and a half; and by Häberlin (13), who found the reaction delayed in 87 per cent. of all cancer cases examined by him.

But others—Huber (7), Bourget (8), Silberstein (9), Ochmen (10) —in working at the subject, found that all traces of the salol disappear from the urine in health in twenty-four to twenty-seven hours, while in cases of enlargement of the stomach or enfeeblement of its walls, forty to sixty-six hours may elapse before the disappearance occurs.

These clinical observations, curiously enough, are in direct antagonism to some experimental work lately chronicled. In the last edition of his great work on Digestion, Ewald (11) mentions that there is a very considerable mass of evidence to show that the contents of the small intestine are acid throughout, and this has been corroborated by Macfadyen in some observations made on the contents of the ileum in man. The acidity is due to acetic and lactic acids; and it can easily be proved that salol is prevented from splitting into carbolic and salicylic acids by a solution of acetic acid.

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[1] Figures within parentheses refer to bibliography at end of article.

Klemperer's oil method may just be mentioned to be dismissed, but several well-known observers have recommended the use of iodide of potassium in the same way as that in which Ewald advised the use of salol.

Known generally as Günzberg's test, it has apparently been independently worked out by Sahli (14) in Berne, and by Margan in France. The main idea of the process is, to judge by the length of time which elapses between the ingestion of iodide of potash and its appearance in the saliva. The salt is enclosed in a caoutchouc tube stoppered with fibrin, each writer on the subject having a favourite form. The time taken in digesting the fibrin determines the appearance of the iodide in the saliva, dependent, of course, on the absorptive power of the stomach.

Penzoldt and Faber (15) also used iodide of potash enclosed in gelatine, to test the absorptive power simply. Günzberg's test has recently been investigated by Drs Symons Eccles (16) and Tolcher Eccles (17),—indeed, their investigations are not yet completed, but, as far as they have gone, they consider the test of value. They first examine the activity of *absorption* of the stomach by means of tincture of rhubarb, which, as has been shown by Lauder Brunton, soon appears in the urine, and may be detected in that fluid by its reaction when liquor potassæ is added. Then they use Günzberg's capsule to estimate the *digestive* power. The normal reactive period for the latter they give as seventy-eight minutes. Some practical observations on these methods will also be found noted in some cases of dilated stomach narrated by Dr Cutler (18).

In the hope of getting rid of some of the inconveniences which arise from the use of the stomach-tube, Dr Einhorn, in 1890, introduced a "stomach-bucket," which is, in fact, a silver bucket, hollow, of the shape of the bulb of a probang, and with an open top. This bucket is swallowed and recovered again by means of a silk thread attached to it. It generally contains sufficient of the stomach contents to test for free HCl. A good description of it will be found in the *Dublin Journal* for February last by Dr H. C. Tweedy (19). The advantages claimed for it are, that it is more simple and easy to use than the tube, that it is a great advantage to the general practitioner, and that there is no danger attendant on its use.

It does not appear that this method has any advantages over the tube, for if a tube with a very soft rubber end or nozzle, however stiff the rest of it may be, be used, cases suffering from cancer or ulcer may be examined with ease and without danger.

Dr Soltan Fenwick, writing on this subject, imputes all sorts of dangers to the process of washing out the stomach—convulsions and tetany, syncope and sudden death, perforation and hæmorrhage, injury and poisoning, may in his opinion result from it. The convulsions, he says, it is true, may only be set up by the irritation of the passage of the tube, the existing dilated stomach accounting for the tendency. But he is on surer ground when he speaks of the dangers which may occur in cases of gastric ulcer, if strong expulsive efforts are made by the patient during the passage of the tube. He recommends a more discriminating employment of lavage.

On the other hand, Dr Harvey Attfield (20) reports most excellent results in the treatment of chronic gastric affections by lavage; while Prof. Chas. G. Stockton (21), and H. M. Fisher, M.D. (28), also recommend it.

Dr Einhorn (22) has invented an electrode for use in the stomach of much the same form as his "stomach-bucket," the silk thread in this case being replaced by a soft wire clothed in india-rubber. The circuit is as usual completed by introducing some water into the stomach, and placing the other electrode on the epigastric region. The author claims to have increased the acidity of the contents by this means, and to have diminished the absorption period for the chemical tests, as Ewald has claimed before him. Wolff (24), however, categorically denies this, observing, however, that the current may be of use in dilating œsophageal strictures (!), and in restoring tone to the walls of the stomach in atonic ectasis; while Dr Stockton (23) speaks enthusiastically of its use in all cases in which the motility of the stomach walls is weakened. Cases with marked gastric catarrh do best with the continuous current, the anode being used within.

Gastric ulcer has, as usual, come in for a considerable amount of discussion. Dreschfeld (25), in the *Medical Chronicle* for last year, gave a full description of our later knowledge, while Henry (26), last February, in a paper on this subject, pointed out that the hyperacidity found in such cases is a relative term. In one class of patients, for instance in chlorotic women, a normal acidity is often hyperacid to the stomach walls. He points out well, too, that injury to the stomach walls, if the acidity present be relatively normal, will not produce an ulcer; but if hydrochloric acid solution, 5 per cent. say, be injected into the viscus, "the loss of substance, instead of rapidly healing, would degenerate into a typical round ulcer."

The latest note on this subject is that of Weir's (27), in the *New International Medical Magazine*, who discusses some cases of laparotomy for perforating round ulcer of the stomach, and gives some history of the operation.

The effect which the presence of albuminoids has on the reactions and properties of free HCl is attracting more attention. Hayem and Winter's (29, 30) method, as published in their book, lately reviewed in this Journal, has provoked considerable criticism.

Bouveret and Magnien (31), and Wagner (32) of St Petersburg, have published notes on the process. The first two named think it cumbrous and little suited for its purpose; the last has a better opinion of it, but thinks it needs further corroboration.

Rosenheim (33) has written fully on the effect albuminoids and amido-acids have on HCl, and took occasion to doubt the results obtained by Salkowski and Kumagawa (34). This led Salkowski (35) to repeat his experiments with amido-acids, and to modify his opinions concerning them. His latest research shows that the presence of amido-acids during peptic digestion only exerts a slight malign influence.

The micro-organisms of the stomach have not been troubled much lately; the only note on the subject is a paper by E. Hirschfeld (36), on the effect of an artificial gastric juice on acetic and lactic fermentation, in which he shows that HCl alone is a more powerful germicide than HCl *plus* pepsine.

The only other thing of note is a pretty little quarrel which has been going on in the pages of *Pflüger's Archiv* between Prof. Wagner on the one hand, and C. Friedheim and H. Leo on the other, about the merits of Leo's calcium carbonate test for HCl.

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1. Kullmann.—*Inaugural Dissertation*, Giessen, 1888.
2. Brunner.—*Deutsche Medicinische Wochenschrift*, No. 7, 1889.
3. Decker.—*Berliner Klin. Wochensch.*, No. 45, 1889.
4. Leo.—*Diagnost. der Krankheiten der Verdanungsorgane*, s. 81.
5. Pal.—*Berliner Klin. Wochensch.*, No. 48, 1889.
6. Rodczjewski.—*Maly's Jahresbericht der Thierchemie*, 1887.
7. Huber.—*Münchener Med. Wochensch.*, No. 19, 1889.
8. Bourget.—*Rec. Méd. de la Suisse Romande*, pp. 103–106, 1888.
9. Silberstein.—*Deutsche Med. Wochensch.*, No. 9, 1891.
10. Ochmen.—*Inaugural Dissertation*, Giessen, 1891.
11. Ewald.—*Klinik der Verdanungskrankheiten*, vol. i., p. 156 in the 1886 edition. (Page 172 in Dr Saundby's translation of the 1891 edition.)
12. J. Wolff.—*Zeitschrift für Klin. Med.*, 1883, Bd. vi. s. 112.
13. Häberlin.—*Deutsches Archiv für Klin. Med.*, Bd. xlv. s. 337.
14. Sahli.—*Correspondenz-blatt für Schweitzer Aerzte*, 3, 1891.
15. Penzoldt und Faber.—*Berliner Klin. Wochensch.*, s. 313–315, 1882.
16. Symons Eccles.—*The Practitioner*, April 1892.
17. Tolcher Eccles.—*The Practitioner*, March 1892.
18. Cutler.—*The Boston Medical and Surgical Journal*, Dec. 3, 1891.
19. Tweedy.—*The Dublin Journal of Medical Science*, February 1892, p. 104.
20. Attfield.—*The Practitioner*, February 1892.
21. Stockton.—*The Medical and Surgical Reporter*, January 16, 1892.

22. Einhorn.
23. Stockton.
24. L. Wolff. } *The Journal of the American Medical Association*, Feb. 13, 1892.
25. Dreschfeld.—*The Medical Chronicle*, vol. xiv. pp. 81, 249.
26. Henry.—*The New York Medical Journal*, February 27, 1892.
27. Weir.—*The International Medical Magazine*, vol. i. No. 1.
28. Fisher.—*The Medical and Surgical Reporter*, Nov. 14, 1891.
29. Hayem and Winter.—*Du Chimisme Stomacal*, 1891.
30. Hayem.—*Revue Méd. de la Suisse romande*, xi. 3, 1891.
31. Bouveret et Magnien.—*Lyon Méd.*, xxiii. 31, 32.
32. Wagner.—*Arch. de Physiologie*, xxiii. 3, 1891.
33. Rosenheim—*Centralblatt f. Klin. Med.*, September 1891.
34. Salkowski und Kumagawa.—*Virchow's Archiv*, Bd. cxxii. s. 235.
35. Salkowski.—*Virch. Archiv*, Bd. cxxvii. s. 501.
36. Hirschfeld.—*Arch. f. d. gesammt. Phys.*, xlvii. 9 und 10, s. 510.

III.—ON THE RESTORATION OF THE APPARENTLY DROWNED.

By William Alexander, M.D., Brigade Surgeon, A.M.D., Glencorse.

(*Read before the Medico-Chirurgical Society of Edinburgh, 4th May* 1892.)

Death by drowning is the result of suffocation, either from the direct introduction of water into the air passages, or from closure of the glottis, or by a combination of both these conditions. To attempt resuscitation with any possibility of success, the tendency to closure of the glottis should be removed, thus giving an opportunity for any fluid to escape from the bronchial tubes, and afterwards for the admission of air to the lungs.

In a paper by Dr Howard, read in London Medical Society, October 22nd, 1888, it was demonstrated that the most effectual method of keeping the entrance to the larynx open during administration of chloroform, etc., was by forcibly extending the neck backwards, which raised the valve. Shortly after this, when engaged in instructing a detachment of the Medical Staff Corps on the subject, it struck me forcibly that the simple procedure recommended by Dr Howard was equally applicable in cases of apparent death from drowning, and I became aware that the instructions laid down in certain official manuals were erroneous, and the illustrations on the subject misleading.

I have not access to the original descriptive teachings of Drs Sylvester and Marshall Hall on the subject, but in the manual before me there is room for improvement. The descriptions given in it are as follows:—

Dr Sylvester's Method.—"Place the patient on his back on a flat surface, inclined a little upwards from the feet. Raise and support the head and shoulders on a small firm cushion, or folded article of dress placed under the shoulder blades. Draw forward the tongue and keep it projected beyond the lips; an elastic band over the tongue and under the chin will answer the purpose; or a piece of string or tape may be tied round them, or by raising the lower jaw the teeth may be made to retain the tongue in that position." Then follows the extension movements. Any one who has tried to follow this description practically will be aware of the great difficulty, if not impossibility, of dealing with the tongue in such a manner, and the result of such procedure on the epiglottis is at least problematical, and many years ago Sir Joseph Lister showed that this method of raising the epiglottis was inefficient.

Dr Marshall Hall's Method is more scientific, and is thus described:—"Place the patient on the ground face downwards, and one of the arms under the forehead, in which position all fluids will more readily escape from the mouth, and the tongue itself will fall forward, leaving the entrance to the windpipe free," etc. It appears to me very doubtful if this position will forcibly counteract the spasmodic closure of the glottis, but with the body placed on an inclined plane, feet raised and the head more forcibly extended backwards, there would be a better chance for establishing artificial respiration.

In my lectures of instruction on this subject I have been in the habit of teaching a combination of the two plans, Sylvester's and Marshall Hall's. Having first placed the patient on his back on an inclined plane with *the feet raised*, and the head thrown forcibly backwards, which insures the raising of the epiglottis, thus affording a means of exit to any fluid in the air tubes, and likewise a means of entrance for air when artificial respiration commences; with an assistant to steady the feet, the forearms are seized and forcibly extended above the head, then brought down suddenly to side, a hand of each operator at the same time pressing downwards the ribs in front; the patient is then rolled over, taking care that the face is not injured, then brought back quickly to original position. This is to be repeated 18 times to the minute, and always to the same side, till natural respiration is established, as it seems in accordance with reason that if water has invaded the lungs, it would give the person a better chance of resuscitation to thus clear one lung by gravitation and expulsion, and when life was restored then to vary the position. Warmth should, of course, be promoted by friction and hot flannels if available, care being taken not to give the *coup de grace* by pouring brandy or other alcoholic drink into the mouth before the power of swallowing is re-established.

There is nothing new in the method I propose except in the application of previous methods. The subject was fully explained, so far back as November 1863, by Dr Robert L. Bowles, yet practices which were then and subsequently demonstrated as impossibilities have been allowed to reappear in our text-books all these years. It is in the hope of improving the teaching of this subject that I venture to bring it forward again in 1892.

IV.—TWO CASES OF PISTOL WOUNDS OF THE CHEST.

By P. A. Nightingale, M.B. Edin., Johore Government Hospital, Straits Settlements.

Case I.—A Chinese coolie, aged 28, was admitted to hospital on Oct. 22nd suffering from a pistol wound of the chest. On examination the bullet was found to have entered the lower angle of the right scapula posteriorly, to have passed through the right lung in a somewhat upward and inward direction, and to be lying just beneath the skin between the fourth and fifth ribs anteriorly, half an inch internal to the nipple line. The bullet, which weighed 80 grains, was removed without difficulty, and simple antiseptic dressings applied. There was a considerable amount of emphysema, especially over the anterior attachment of the pectoralis major, and a good deal of blood was expectorated for the first two or three days. Temperature and pulse remained normal throughout, in spite of patient refusing to keep to his bed, or to eat anything except the usual Chinese rice diet. The wounds healed rapidly, and he was discharged cured on the twenty-second day.

Case II. was also a Chinese coolie, aged 36, admitted into hospital on February 14th. On the previous day a bullet, weighing 120 grains, struck the seventh rib posteriorly in a line with the inferior angle of the right scapula, wounded the lung, ran along the rib, and was extracted 2½ inches in front of the mid-axillary line. There was considerable emphysema around the wound of entrance and along the course of the bullet, and patient was still suffering from shock on admission. Temperature and pulse remained normal till the eighteenth day, when the wounds were healed, and he was discharged well.

These two cases show the remarkable amount of vitality possessed by the ordinary Chinese coolie, and his comparative indifference to pain and injury.

V.—SOME QUESTIONS WITH REGARD TO TUBERCULOSIS OF THE UPPER AIR PASSAGES.

By P. M'Bride, M.D., F.R.C.P. Ed., F.R.S.E., Aural Surgeon and Laryngologist to the Edinburgh Royal Infirmary; and Lecturer on Diseases of the Ear and Throat, Edinburgh School of Medicine.

(*Read before the Edinburgh Medico-Chirurgical Society, 1st June* 1892.)

The pathological identity of lupus and tuberculosis can, I think, be no longer disputed. To anyone who investigates even cursorily modern literature on the tubercle bacillus, it must be evident that this organism is responsible for both diseases, and we must therefore admit that lupus and tuberculosis are but manifestations of the same process. Thus the microscopic structure is almost, if not quite, identical; diffuse tuberculosis has been produced from the inoculation of lupus tissue; a skin disease having all the characteristics of lupus has been observed to occur in the neighbourhood of cutaneous orifices leading from deep tubercular foci; lupus reacts to Koch's tuberculin; and, finally, many patients suffering from the cutaneous malady also present other evidences of tuberculosis. While, therefore, now quite convinced that lupus is to all intents and purposes tuberculosis, I shall still, in the course of these remarks, retain the term with the view of making clear the points which I desire to bring out. Indeed, the clinical distinctions between what has always been, and is still, described as lupus of mucous membranes and what is termed tuberculosis are often so marked that it would not be wise to abandon the designation.

It is somewhat interesting to compare in a general way the manifestations produced by the tubercle bacillus in the skin and mucous membrane of the upper respiratory tract respectively. When the organism attacks a dermoid surface it commonly produces the condition known as lupus, but in very exceptional instances true tubercular ulcers are formed, more particularly in parts where skin is approaching mucous membrane, but sometimes in other areas, such as the arms and legs. When the anterior nares are attacked true lupus is probably more common than typical tuberculosis. The former is characterised by the presence of a nodular infiltration resembling in some respects granulation tissue, while the latter manifests itself either as a tubercular tumour or an indolent ulcer. Both forms commonly attack the septum, but in exceptional cases the inferior turbinated body, and probably other parts also may be first affected. It has been my fortune to see a considerable number of cases of lupus of the nasal mucosa, some primary, but most of them associated with the presence of the eruption in other parts. It has appeared to me that the disease is often considerably modified by situation. Thus near the nasal orifice one sees a nodular infiltration, presenting here and there a yellow transparent colour, the corresponding portions being at the same time very soft when felt with a probe, which can easily be made to penetrate them. These parts appear to have a tendency to become crusted over, but I have not usually been able to associate this scabbing process with any definite macroscopic ulcerative breaking down. As the disease is traced inwards it is found that the nodules are more distinctly red and have a much firmer consistence. I cannot recall any very definite ulceration here either. Sometimes the nodular surface is tinged by a pus-like secretion which indicates that ulceration is in progress, but the process is of infinite slowness, and on cleansing the surface its source is not generally apparent. Such, then, has been my personal experience of lupus involving the nasal mucosa, and I shall venture to bring before you a case of some interest which, excepting for the location of the disease, may be taken as fairly typical.

A young lady was brought to me by Dr Burn-Murdoch on account of nasal obstruction, specially marked on the left side, which had lasted for some years, but had become worse during the last six weeks before her visit to me, early in the spring of this year. On examining the anterior nares the left inferior turbinated body had an eaten-out appearance, beginning near its anterior extremity. The surface of the affected part was distinctly nodular, there was no trace of purulent secretion, but it bled rather readily when touched with a probe. In the opposite nostril there was a nodule covered by a scab in front of the inferior turbinated body.

It is not my purpose in this paper to refer to treatment, but I must mention that the diseased tissue was scraped out and microscopically examined. It consisted of granulation tissue containing in its substance many epithelial cells, but no true giant cells or bacilli were detected. A small portion of the tissue was, however, handed over to Mr Alexis Thomson, and he succeeded in producing tuberculosis in a guinea pig by inoculation with the lupoid tissue. I may perhaps also add that to all appearance the young lady was typically healthy, there being no evidence of pulmonary or cutaneous disease. The diagnosis in this case was arrived at by a consideration of the similarity in appearance between the affected mucous membrane and the condition found in undoubted cases of lupus where the cutaneous affection was also developed in its typical form. The eaten out appearance presented by the left turbinated body, it may be said, gave definite proof of the occurrence of ulceration. Here, however, I am rather inclined to join issue, for it seemed to me rather to indicate submucous absorption permitting falling in of the lupoid surface. Indeed, from my clinical observations on lupus of mucous membranes, I am rather inclined to think that such limited destruction of parts as occurs is often due to a caving in of the nodular surface rather than to external breaking down.

Let us now glance at the lesions liable to be produced in the pharynx by the tubercle bacillus. By the term pharynx I mean the throat as examined by the tongue depressor, and do not include the naso-pharynx, where too few tubercular lesions have been observed to admit of any generalisations. Moreover, I have intended this paper to be rather a brief account of individual experience than a digest of the observations of others, and I have with one doubtful exception never seen tuberculosis in this region.

In the pharynx proper I have met with at least two distinct varieties of tuberculosis, always associated with pulmonary disease, and characterised by marked pain.

In one form the palate and, indeed, the whole pharynx are extremely pale, here and there ulcers are seen of varying size; these may be situated on the tonsils, the posterior pharyngeal wall, and the soft palate. These ulcers are all shallow, covered with muco-purulent secretion, and their floors have a tendency to produce pale pink granulations. In advanced cases the whole posterior wall of the pharynx may be converted into one large ulcerating surface, the yellow base of which is relieved by protruding granulations. The second form of pharyngeal tuberculosis I have met with only once in a lady who, while showing little evidence of pulmonary disease, suffered from loss of voice. Examination of the larynx demonstrated marked œdema of the epiglottis and the characteristic pyriform swelling of the right ary-epiglottic fold. At the first visit the uvula and right lateral fold of the pharynx were œdematous, of a grayish colour, like that seen in tubercular infiltrations of the larynx, and studded with small yellow nodules, which I assumed to be miliary tubercles. Some six months later, after a residence at Bournemouth, the pharynx was rather better, but the larynx remained as before.[1]

Of lupus of the pharynx, either primary or associated with a similar condition of the larynx, I have seen several cases. In these the area chiefly or entirely attacked has commonly been the soft palate. This part is studded over uniformly with small red nodules, but I have never seen ulceration to any marked extent, although I have observed it where the hard palate is involved. The lupus nodules in this situation seem to me to be of much firmer consistence than are those found about the anterior nares. From the description I have attempted to give it will be evident that lupus and tuberculosis can be clinically distinguished from each other in this region. As to the frequency of tuberculosis and lupus of the pharynx, both are extremely uncommon, and I am not aware that any statistics exist as to the relative numbers of observed cases of each disease. Judging from my own experience, I should say that one is met with as often as the other.

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[1] This patient was again seen since this paper was read. The pharynx has lost all traces of disease; the epiglottis, too, has almost returned to its normal dimensions. There still remains, however, an infiltration of the right ary-epiglottic fold. The treatment was general and local (menthol and lactic acid applied by Dr Thomson of Bournemouth and myself).

If we now pass to the larynx we find a very different state of matters. Here, as everyone knows, tuberculosis is quite common, while lupus is relatively rare. It is true that observers who have not confined themselves to laryngeal clinics have found the larynx affected in from 5 to 9 per cent. of lupus patients where these were systematically examined; notwithstanding these results it must still be admitted that laryngeal lupus is far from common.

In the cases I have observed the epiglottis, the false cords, and the ary-epiglottic folds have been attacked. These parts showed a nodular infiltration of red colour, and there seemed again to be the same absence of superficial ulceration. The disease differs from phthisis laryngea in almost every detail. The colour of the thickened parts is red in lupus, it is usually pale in phthisis; the surface is commonly nodular in one (lupus), it is smooth in the other. The course of typical tuberculosis is rapid, *i.e.*, the patient generally dies within two or three years. It is slow in lupus; thus I heard recently that a patient whose larynx presented marked lupoid changes in 1883 is still in good health, and that her throat is better than it was. Lupus has often little or no tendency to superficial ulceration, while in tuberculosis this tendency usually soon shows itself. I have, I think, said enough to prove that it is not only perfectly fair but necessary to make a clinical distinction between lupus and tuberculosis of the larynx.

Let us now consider how far we are entitled to draw any general deduction from the facts before us. We have seen that the skin is but rarely attacked by true tuberculosis, but frequently by lupus; we have further seen that in the larynx tuberculosis in its typical form has an immense numerical preponderance over lupus. Further, it is probable that lupus is distinctly more common in the mucous membrane at the nasal orifices than tuberculosis, and that in the pharynx the two conditions are about evenly balanced. I doubt, however, whether without exact statistics it would be right to attach too much importance to the two last-named points. Without them, however, merely considering the skin on the one hand and the larynx on the other, we have enough evidence to suggest that the tendency of the same organism to produce a lupus manifestation in one situation and a tuberculosis in the other is probably due to anatomical differences in the parts affected. The nature of these differences is, however, anything but clear. Other factors besides histological distinctions probably play a part, for the mucous membranes of the upper air passages are under physical conditions which are by no means similar to those of the skin. Although the presence of lupus and tuberculosis in mucous and dermoid surfaces respectively are, from a consideration of the facts adduced, in all probability to be accounted for on anatomical grounds, yet there are difficulties in accepting this view as even a sound working hypothesis. Individual predisposition must also be admitted to play some part, for on what other supposition can we account for the comparatively common occurrence of laryngeal lupus in those who are the victims of the cutaneous malady, while primary laryngeal lupus or lupus secondary to pulmonary disease is admittedly of extreme rarity? With regard to the question of position as influencing the occurrence of lupus or tuberculosis in its more typical form, it is of interest to note that lupus has rarely, if ever, been known to extend into the trachea. I am not aware whether any lesion corresponding in its macroscopic characters to lupus has ever been described by pathologists as occurring in the respiratory tract below the upper portions of the windpipe. In the digestive and deeper genital mucous membranes I do not know that such a disease has been found; it has once been recorded as observed in the middle ear, while it has not been met with in internal organs. Of course, in considering this aspect of the question it must be remembered that the difference between lupus and tuberculosis is chiefly macroscopic and clinical, and that therefore the differentiation could not be carried out in parts not accessible during life. I need hardly say that I have consulted older works written at a period when the two conditions were considered as distinct, with a view to the elucidation of the question just raised; but even in these (edition of Klebs' *Pathological Anatomy*, 1873) I find no reference to lupus of the parts referred to, *i.e.*, internal viscera. As a rule, the macroscopic difference between lupus and tuberculosis of the mucous membranes of the upper air passages is so marked, that looking at the question from a purely clinical point of view, it is extremely difficult to believe in the identity of the two diseases. I am, of course, aware that ulceration has been described by many authorities (*e.g.*, Neumann, *Atlas der Hautkrankheiten*) as a common feature of lupus of mucous membranes. That it may be so I do not deny, but in that case my own experience has been of an exceptional nature, and, as before mentioned, it is my desire to introduce into this discussion rather what I have observed than to record the observations of others. The position I should be inclined to take up with regard to the ulceration of lupus in mucous membranes is as follows:—The parts affected by the infiltration are always irregular and thickened, therefore they are exposed to injury from contact with adjacent parts or extraneous substances; as a result of such injury ulceration may take place, but breach of surface is not a direct or early result of the diseased process as in tuberculosis. I have no desire to insist upon the accuracy of this view, but only to state that a comparatively limited series of clinical observations has inclined me to adopt it.

We have seen, then, that there is a marked clinical distinction between the two forms of disease as produced by the action of the tubercle bacillus. We have also seen that all recent observations have tended to show that this organism is responsible for both varieties. It remains to consider whether transition forms are met with. Again, relying merely upon my experience, it appears to me that such forms occur, but that they are of extreme rarity. So long as I could not either adduce or find described such transitional stages, it seemed to me that a very serious link was wanting in the chain of argument which seemed to prove the identity of lupus and tuberculosis, although I am not prepared to say that these arguments would be invalidated even by the absence of intermediate conditions. I can, at present, only recall three instances in my own practice. Of one I can only write from memory, as owing to the circumstances of the case no notes were kept; of another I have a fairly complete record; while the diagnosis in the third instance admits of some possible doubt.

The first case was that of a young gentleman of distinctly strumous habit, showing glandular enlargement about the neck, and, if I remember right, cicatrices in the same situation. He had aphonia some five years or thereabout before his death, and when I first saw him the larynx was in a state of advanced disease—infiltration of the epiglottis, ary-epiglottic folds, and ventricular bands. There was distinct stenosis due to this cause, while although there was evidence of pulmonary disease, this was not found to be either very active or very advanced. To show the slow nature of the malady, it may be mentioned that long after his visit to me the patient was able to ascend on foot one of the highest mountains in Scotland. The laryngeal infiltration differed from that usually seen in being of a red colour, in having a more uneven outline, and by evincing but slight tendency to ulcerate. Unfortunately, owing to the absence of notes I cannot lay much stress upon this case. In the case of the other patient, however, I have fairly full notes, especially with regard to the point at issue.

A. B., æt. 17, consulted me at the Infirmary in 1888. On examining the larynx the epiglottis was seen to be much thickened, of red colour, and nodular. Both ary-epiglottic folds were much infiltrated, especially the right. The posterior wall of the pharynx was marked by distinct ridges, the uvula was somewhat thickened, with yellow nodules embedded in its substance. The submaxillary and cervical glands were swollen, and, according to the statements of the patient and his father, had always been so. There was a small patch of skin eruption on the left side of the chin, but to the best of my recollection—here I write from memory—this was not lupus. On examining the lungs prolonged expiration was found at both apices, and some impairment of percussion at the right base. There was at this time no cough, and "no hæmoptysis" is recorded in my notes. The throat only got bad two months before my examination; the symptoms complained of were hoarseness and pain on swallowing. There was no dyspnœa of any consequence. I lost sight of the patient for some time on account, I think, of my questions with regard to the possibility of specific disease. I, however, saw him somewhere about a year afterwards, when the larynx was, so far as I remember, in much the same condition as before. The appearance of the palate had, however, changed. Whereas at his first visit there were small yellow points quite like those already described in a case of undoubted pharyngeal tuberculosis, there was then a very distinct uniformly red nodular infiltration extending over the soft palate.

I after this lost sight of the patient for a time, but about the period when tuberculin was being so largely employed he came back to me. There was then very marked laryngeal stenosis,—indeed, his case is the original of the drawing of laryngeal lupus in my recently published work. The epiglottis and false cords were so infiltrated that the true cords were invisible and the respiratory lumen much narrowed. Realizing that active treatment was necessary, and considering that the risks of tuberculin would be less than the dangers incurred by either endo-laryngeal scraping or the same process after thyrotomy, I suggested the employment of Koch's method. Prof. Chiene very kindly took the patient into his ward—as I had then no beds—and carried out the injections. He thought it desirable to perform a preliminary tracheotomy, and I feel sure that this was a wise step, in so far that it prevented aspiration of diseased tissue and removed all danger from dyspnœa. The patient only reacted with difficulty—after several injections—and after a time these were given up, because it was thought they were doing no good. Only some weeks later did a marked improvement occur, and on laryngoscopic examination, I was, to my surprise, able to see both vocal cords, which showed as white bands—these having evidently escaped lupoid infiltration. I do not know the future history of this patient, but no doubt marked temporary benefit followed the employment of tuberculin. This was the only case in which I ever felt justified in distinctly advising its employment, for the only alternative was a surgical operation of such a character that it would have directly endangered the life of the patient.

The third case was that of a boy of fifteen, whom I first saw in December last, and full details of which will, I hope, be published at some future time by Dr Gemmell of Airdrie, whose patient he is. The history pointed to a throat affection having lasted about four years; this went on, in spite of treatment, until his visit, when he complained of difficulty in swallowing and a pain in the roof of his mouth. On examining the throat the following points were noticed. The hard palate presented marked nodular infiltration, which was and is still extending over the gums. The pharynx presented no signs of active disease, but had all the appearances of healed ulceration, so commonly met with in specific cases: there was marked stenosis, the uvula had disappeared, and a thick mass corresponding in position to the left lateral fold partly occluded the passage. With the laryngoscope the epiglottis was seen to be thickened on the left side. This thickening has now assumed a nodular character, while the corresponding ary-epiglottic fold presents a pyriform swelling more like typical tuberculosis. There was thickening of both alæ nasi at the patient's first visit, and externally a nodule not unlike lupus was noticed. Both nostrils have since become occluded by masses of thickened mucosa, which according to my notes have no definite nodulation. The patient, notwithstanding his ailments, had a remarkably fine physique, the teeth were not notched, there were some enlarged glands at the side of the neck, and a patch of doubtful dulness over the right apex. It need hardly be said that iodide of potassium was given, and at one time mercurial inunctions were advised. The latter seemed, however, to have a distinctly harmful influence, for just afterwards the nodules in the palate began to ulcerate. On ceasing the use of the mercury these ulcerations rapidly healed, and the nodular infiltration only was apparent. If, as I am inclined to think (and I believe Dr Gemmell shares this view), this is purely a case of tuberculosis, the process must have entirely healed in the pharynx and broken out or persisted at three distinct points—to wit, the anterior nares, the hard palate, and the larynx, where with the exception of arytenoid region it had the clinical characters of lupus. During the temporary ulceration which was apparently caused by the mercury, some of the secretion of the mouth was examined for bacilli with a negative result, so that absolute proof of the tubercular character of the disease is wanting, but the negative effect of potassium iodide and the clinical features make it almost certain that the throat affection is partly, if not wholly tubercular.

In concluding this paper I must apologise for having appeared to ignore literary references. I have avoided them, except very incidentally, because it has been my desire to bring forward merely my own experience, which as to certain points, *e.g.*, the frequent absence of any marked tendency to ulceration in lupus of mucous membranes, seems to have been somewhat out of accord with the descriptions of most writers, and to obtain the verdict of members of this Society as to which view tallies with general experience.

VI.—CLINICAL OBSERVATIONS ON DIPHTHERIA AND CROUP.

By Albert Wilson, M.D., Leytonstone, Essex.

During thirteen years of general practice it has fallen to my lot to treat a very large number of cases of diphtheria. An approximate estimate is impossible, chiefly on account of the uncertainty of diagnosis in mild cases, and also the absence of definition. For the same reasons all statistics, by whomsoever compiled, are of no scientific value.

Diphtheria has certain peculiar clinical aspects. At the onset no man can say whether the case is mild or malignant, or if the case would recover *per se*, or whether it will die in spite of the utmost skill and care. There is no guide to the virulence of diphtheria. Cases with high temperature and much constitutional disturbance may rapidly recover; while, on the other hand, cases with very slight fever may assume a depressed or typhoid state and slowly die, without any rallying power. Nor do we gain foresight by the local symptoms. The fauces may be loaded with membrane like wash-leather, which is cast off, and recovery follows. Conversely only a few specks or a thin gray veil may form on the tonsils or palate and pass to the larynx, and recovery has to be fought for every inch of the way, and possibly in the end defeat and death.

There is yet another type met with in epidemics. An apparently mild case recovers in three or four days. A relapse occurs in a period varying from two to ten days after. The relapse in many cases is to be distinguished by its extreme malignancy. A thin gray veil spreads over the fauces, which is rapidly followed by a dirty gray or blackish slough, which reappears as frequently as it is removed. In such cases the vital powers are low; there is very little resistance. I have seen three such succumb.

Medical literature has been enriched this year by an able work on the Natural History of Diphtheria and its Prevention. I wish to allude to parts of this book by Thorne Thorne from a physician's standpoint. While the prevention of diphtheria is desirable, the cure of it is a genuine necessity, and I regret that medical officers of health too frequently ignore the labours of their confrères when they make such remarks as, "We are still unfortunately in the drug age" (see some recent lectures on influenza).

As a matter of fact diphtheria has increased in parallel ratio with improved sanitation. But at the same time it has increased with compulsory education since the Act of 1870 (p. 142). Doubtless, as Dr Thorne Thorne points out, epidemics are fostered by the aggregation of children at school. Epidemics have never been shown to be caused by schools. The cause of diphtheria is then as obscure as ever. But some of the theories advanced will hardly bear criticism.

Water, whether clear or polluted, is exempt as a cause of diphtheria (p. 78). Food might similarly be exempt, for on p. 80 Dr Thorne says, "At the Pasteur Institute animals have been caused to take into the stomach an amount of diphtheria poison, which if introduced into the system by inoculation would infallibly have produced the disease in a serious if not a fatal form." In some experiments reported to the Pathological Society last year, I fed one cat on several pigeons which died after inoculation with cultures of diphtherococci, and the animal was unaffected; while two cats which were closely interested in the experiments caught diphtheria by inhaling the atmosphere of the cages in which the pigeons were kept. I found that HCl has a fatal effect on the diphtherococci at a strength of 5 per cent., so probably the cocci were destroyed by that acid in the stomach. In a similar way in theory we ought to be protected from milk if infected with diphtheria germs, which infection has, I believe, never been proved. In support of the milk theory Dr Thorne says (p. 152), that the dissemination of diphtheria by milk is supported by statistics in some cases, yet in other cases, while diphtheria has been spread apparently by milk, yet (p. 156), "it could certainly be acquitted of the introduction and early maintenance of the disease." In some of the epidemics apparently connected with milk service the milk has been "ropy" (p. 167), or there have been chaps or scabs or vesicles on the cows' udders (p. 175).

A farmer of considerable experience, and one of the largest milk vendors in London, informs me that ropy or stringy milk depends on the food, and is produced by vetch and similar herbs. The condition is cured by change of diet and purges. While as regards the vesicles and chaps, I have inquired of many farmers and veterinary surgeons, and find that slight ailments will produce these, and they are of such constant occurrence that they could not possibly be the cause of such serious epidemics. In support of the ropy milk theory, Klein found that milk inoculated with his diphthero-bacilli did not lose its fluid character, but flakes of casein separated. In my own experiments I found inoculation of milk with my diphtherococci produced in thirty-six hours coagulation. Klein inoculated cows with his diphthero-bacilli, and got vesicles on the udders, and two cats fed on this milk developed catarrh of the conjunctiva and respiratory passages and died, and one cat had diphtheritic membrane in the trachea. But these cats, kept for experiment, were not guarded against all sources of infection, so that one case is not absolute proof. Moreover, the cows had no membrane, but catarrh of the conjunctiva and respiratory passages, and broncho-pneumonia, which disease approaches measles or septicæmia.—Klein's Government Report, pp. 174-176.

I have more fully criticised the Government Report on the diphtheria bacillus last year at the Pathological Society. But I might concentrate my opinion of the bacillus of diphtheria, Klebs Lofflers, also Klein's, by quoting Klein's own words in his report, 1889 (p. 187 of Thorne's book):—

"Having regard to these facts, especially to the limitation of the Klebs Loffleri bacillus to the superficial parts of diphtheritic membranes, to its presence in the normal human fauces, and to the pathogenic action on animals of this bacillus not being essentially diphtheritic, it is no matter for surprise that the view that this bacillus is the cause of diphtheria has come to be discredited by many pathologists and bacteriologists."

Oertel (p. 106) inoculated horses with the poison of glanders under the skin, with the invariable result of its further manifestation upon the nasal mucous membrane. I inoculated pigeons on the breasts with cocci obtained from malignant diphtheria (not from the membrane, but in the premembranous stage), with the result that membrane appeared in the fauces of the pigeons, and paralysis occurred.

On these grounds I refute all experiments with this bacillus which have not produced membrane and paralysis. I do so specially now, as some of these experiments are used to support the theory of milk infection. It is strange that no one yet has announced true diphtheria among cows. It is there. Farmers have described to me a disease in cows, with swollen glands under the jaw, difficulty in swallowing, cough, and choking, great constitutional disturbance, sometimes inability to stand, and death. This is more to work upon than a few vesicles on the teats.

There is positive evidence as to the cause of diphtheria in Dr Thorne's book. Thus (p. 176), "Some sheep suffering from throat disease of an unusual and fatal character were herded close to a school which was the scene of the outbreak. The almost simultaneous seizure of the two children first attacked appeared to point to one common source of infection, and there was no previous diphtheria. On p. 178, Dr Turner in 1886 reports diphtheria in pigeons and fowls during an epidemic in Braughin. On p. 180 one reads that in 1884 a Greek island, after thirty years' immunity, was invaded by diphtheria (125 cases with 36 deaths) after the landing of some turkeys which had false membranes on their palates. All the turkeys died except one, and this had leg weakness. Cats are also known to have and to spread diphtheria. All this direct evidence, combined with our later knowledge of school dissemination, point to one and only one method—ÆRIAL INFECTION.

Dr Thorne alludes (p. 148) to the fungoid origin of diphtheria. He describes "a damp clay soil, which retains subsoil stagnant water, which is saturated with fermenting or mouldy refuse." To this is added, on p. 103, "By oscillations of its level, soil water is capable of collecting or forcing out from the soil air charged with excremental impurities." "With a sudden fall of the barometer the germ-charged air is aspirated out of the soil and sewers." This important information again supports the theory of ÆRIAL INFECTION AND PROPAGATION. I am strongly in favour of this theory by my own experience, especially as I find it almost universal that the mild and severe cases alike "catch a cold or chill" before the onset.

Dr Thorne alludes (page 86) to the prevalence of mild sore throats preceding and during these epidemics, also to severe infectious colds which are attacks of "nasal diphtheria" (page 88). I can testify to these facts by abundant experience. When an epidemic prevails I may see five or even ten mild cases to one severe case. Yet the mild cases have unmistakable symptoms—red swollen fauces, with yellow spots or patches, enlarged tender glands, and temperature from 102° to 105°. With HCl or lactic acid, and sometimes internal remedies, they are quite well in one to three days, but the weakness in muscles or nerves appears too severe for such a slight throat ailment.

Whilst searching for the specific organism I have found the same minute cocci in mild cases as in the severe. Moreover, a culture of the mild cocci produced in a pigeon mild sore throat with ulcers or patches, but no paralysis or leg weakness.

Much is now written of local inoculation of the specific germ on an inflamed tonsil. I am not inclined to accept this view. Must Peyer's patches be specially prepared for the typhoid germs? Is typhoid a local disorder? I have closely observed my cases, and have found inflamed tonsils accompany the onset and not precede it, while it is common to find tenderness in the glands or tonsils *precede* any redness of the faucial mucous membrane.

Oertel's experiments with glanders, and my experiments with pigeons, point to the constitutional character of the disease. In my experiments I found as a malignant case progressed the cocci became attenuated, and secondary cultures of virulent cocci also became attenuated. This exactly corresponds with clinical experience, and illustrates the mild types during epidemics. One of my experiments illustrated forcibly the intensity of relapses. I inoculated a pigeon with attenuated cocci by scratching the throat. The effect was very slight. Some days later, I inoculated the bird over the pectoral muscle with a different and impure culture of attenuated cocci. The bird died of paralysis and membranous sore throat. This second crop of cocci proved harmless in another pigeon. This fatal case was due either to a mixed infection, or more probably to a second dose of attenuated cocci acting with redoubled vigour on a previously weakened pigeon. May not this lend some explanation to the severity of relapses.

In the human, mild, self-recoverable cases may produce serious constitutional weakness.

A clergyman's wife living in the country had a sore throat, and temperature 101°, whilst an epidemic of diphtheria was raging in the neighbourhood. She stayed in bed a week, and got quite well. She, however, suffered from extreme debility, loss of muscular power, and faintness for some weeks afterwards.

A lad, 17, consulted me for swollen tender glands on one side of the neck and extreme debility. He had a slight sore throat with a yellow spot, and was feverish ten days previously. This got well without treatment, but the glandular enlargement remained. There was also loss of tendon reflex for about a month.

In these cases the after effects were out of proportion to the acute stage. They show the depressing effect of diphtherin, which is essentially a nerve poison, producing paralyses due to nerve and muscle degeneration, as has been shown by various investigators.

FATAL CASES.

By studying the dangerous points of a coast the mariner is enabled to avoid them, and so I have sifted all the fatal cases of diphtheria I have met with, in order to gain knowledge for other malignant cases.

Since 1879 my principle in treatment has been thorough antisepsis of the throat, mouth, and nose. I carefully avoided irritating drugs like carbolic, as I observed they weakened the tissues, and then the membrane would spread. For eight years I never had a death, though there were many malignant cases every year. In the majority of these cases I used no internal remedies, and thus began to regard diphtheria as a purely local disease of the throat. But in some of the more malignant cases I gave large doses of salicylate of soda internally. Where the larynx or anterior nares were invaded I used dry creasote, or cresolin evaporation, or the steam carbolic spray, kept on for the greater part of day and night, and iodoform insufflations. Of nine fatal cases, five were directly under my own care, and four were not treated antiseptically.

1. Of my five cases, the first was a girl, B., aged 2 years. The throat became clean with treatment in four or five days, but as the child also had whooping-cough, the disease invaded the larynx and trachea. Fearing death by asphyxia, I performed tracheotomy, cleansing the larynx and trachea with a feather dipped in some antiseptic. The child died five days later. Post-mortem I found no trace of membrane, but broncho-pneumonia. I was unable by stain to find any organisms. At the time I was much puzzled as to the cause of death. There was no mechanical obstruction. There was no membrane or unhealthy ulceration. I could only attribute death to the same subtle poison which paralyses groups of muscles paralysing the heart. There was no obstruction or difficulty of respiration, but a gradual failure of strength and of the pulse.

To simplify terms, we might call the poison evolved by the diphtherococci, *diphtherin*. It varies in virulence, as one observes clinically. That which is evolved from attenuated cocci is almost inert, while that from virulent cocci appears to act on the medulla almost before there is time to act on the spinal cord. But more of this later.

2. My second fatal case was a boy, B., aged 5. His brother, three years older, had a severe attack about two months previously. The immediate source of infection was obscure. There were several bad cases in the district at the time. His throat rapidly cleaned with lactic and boracic, but he resisted a good deal, and so the parents ordered all local treatment to be stopped. At once a thin veil of gray exudation formed over the soft palate, spreading downward over the fauces and to the larynx. Large doses

of resorcin and strong creasote and carbolic spray were used, but in seven days from the cessation of treatment he died. The temperature never rose more than 3 degrees above normal, but the pulse kept above 140. At the early stage of the laryngeal invasion there was cough and dyspnœa, but this passed off, and he died very comfortably, the respiration getting slower and shallow, coincident with the failure of the heart's action. I emphasize the mode of death in reference to *tracheotomy.*

3. My third fatal case was a girl, C., aged 10 years. She was not seen till the fourth day of the disease. Her temperature was then 104°, and pulse 140. She was weak and emaciated, and strongly resisted both treatment and food. Thus there was great loss of strength. As fast as the membrane was cleansed off it reformed, and the ragged ulceration of the tonsils and left soft palate refused to heal, usually being covered with a dirty gray exudation. On the ninth day her temperature, which had been normal for four days, rose to 103°, and a purple, measly rash similar to typhus appeared on the legs and sides, gradually spreading over the body. In two days she died, without asphyxia or invasion of the larynx. In section of the tonsil, I found in one or two places exudation containing cocci similar to those I experimented with on pigeons. There were also some groups of cocci in the tissues.

4. My fourth fatal case was a girl, L., aged 4 years.[1] I saw her on the fourth day of the throat disease, but seven days previously she was seized with influenza. The temperature was 104°, and the pulse 140. The fauces and uvula were covered with thick membrane, which would not separate, but was dissolved off with dilute lactic acid on the third day of treatment. The larynx was invaded on the seventh or eighth day, but by the use of pilocarpin hypodermically and the carbolic steam spray it was clear about the tenth day. On the evening of the eleventh day the temperature, which had kept down to about 99°, began to rise rapidly. At 10 P.M. it was 102°, at 6 A.M. 104°, at 10 A.M. 107°. During the last twenty-four hours there was constant diarrhœa and vomiting, suffusion of the conjunctivæ and stupor, and a bright red scarlatina rash all over the body. A cold bath and wet pack was given when the tempera-

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[1] Since this paper was printed the following circumstances occurred which support the theory of ærial infection. A doll belonging to Case 4 was given to a child R. R.'s mother put the doll away for six weeks. Four days after R. received the doll she became ill; rigors, backache, prostration, swollen throat, tonsils covered with membranes, temperature 103°. It was a very malignant case, the membrane did not cease to form for nine days. She recovered. R.'s sister "hugged" the doll once. She had swollen, painful tonsils, temperature 102°. Membrane did not form, probably checked by treatment. These children attended school, and four or five other children contracted diphtheria within the following week. R. had been playing with a family B., and the nursemaid fell ill with diphtheria the same day as R., and a week later one of the children. Thus the doll apparently started the epidemic, and the schoolroom propagated it, both by ærial infection.

ture was 107°, as the child was comatose and had twitchings of hands and feet. The temperature fell to 99° in an hour, the rash went in, and consciousness partly returned, but death ensued in a few hours.

Post-mortem.—A total absence of membrane, except a few specks on one tonsil. Injection of the larynx showed the area affected.

5. My fifth fatal case was a little girl, H., aged 3. She was seen on the first day of the throat symptoms. She had all the symptoms of influenza the previous day,—rigors, followed by fever, headache, photophobia, pain in the back, and great prostration. Many cases of influenza about this time had sore throats. Her temperature fell from 104° to 100° in twenty-four hours, and in three days the patches had disappeared from the tonsils. In two days a relapse occurred. The painting of the throat and carbolic spray were again resorted to, and as cyanosis soon appeared, two cylinders of oxygen were procured. The oxygen removed the cyanosis, and reduced the respirations from 50 to 24, and the pulse from 130 to 110. A measly rash came out three days before death. The dark gray ulceration occurred, which I now regard as the omen of death, due to loss of tissue vitality, no power to heal. The child died very comfortably on the twelfth day of the disease. The oxygen prevented asphyxia, and the respiration gradually became slower.

Post-mortem.—One found in the last thirty-six hours, when one could not use any local measures, the disease had spread over both surfaces of soft palate, all over the fauces, and down the larynx. Carefully examining the membrane as to thickness and adherency, one could trace the mode of extension of the faucial growth. It covered first the anterior surface of the epiglottis and base of the tongue. About this time would occur the irritable, short, croupy cough, the first symptom of laryngitis. It then enclosed the epiglottis or crept down the posterior surface, and thus into the larynx, and when the cords were reached aphonia occurred. The theory of using oxygen was to oxidize the diphtherin or effete products of the diphtherococci, and thus decompose the poison or render it inert; but it was a false hope, the oxygen had no such effect.

These last two cases had many points of resemblance. They were only children, lived in the same road, and died in the same week. The cause of death was heart failure due to diphtheria plus severe influenza. About the same time there were cases of severe and dangerous influenza in children. My four other cases were seen with neighbouring practitioners.

6. The first was a boy, 3½ years old, K., treated with pharmacopœial glycerine of boracic acid. I saw him on the tenth day, and did tracheotomy. I applied saturated boracic acid in glycerine to the trachea and fauces, and all membrane disappeared. On the

fifth day after the tracheotomy, although the child had run across the room for milk, failure of the heart rather suddenly terminated the case.

Post-mortem.—There was no membrane visible, and I stained many preparations, but found no germs. This undoubtedly was diphtherin poisoning of the heart.

7. The second case was a boy, M., aged 3, seen on the ninth day of the disease. It began as a "follicular tonsillitis," which cleared off without treatment in three or four days, and then invaded the larynx. He died a few hours later, but pilocarpine gave temporary relief.

8. The third case was a boy, G., aged 5. This began as "follicular tonsillitis," but quickly passed to the larynx. I saw it on the eighth day, and tried to dislodge the membrane by injecting apomorphine. The depression from the apomorphine was very great. Tracheotomy was performed, and the child went on well for four days and then died. There was bronchitis after the operation, probably septic.

Post-mortem.—One found the membrane passed downwards to the bifurcation of the trachea.

A point of interest here is, that an elder boy and an infant both contracted diphtheria from the patient. They had it in a mild form and recovered, the baby merely by warmth, without any medicine. In my experiments I always found secondary inoculations of gelatine tubes from virulent diphtherococci were attenuated, and also that as a virulent case of diphtheria progressed the cocci were much less virulent on the ninth day than the first. These two secondary cases were undoubtedly affected by attenuated cocci.

9. The last fatal case, a girl, W., aged 9, was seen on the fourth day of the throat affection. She had been subject to acute catarrhal inflammation of very enlarged tonsils, with hoarseness and croupy cough, indicating a similar catarrhal laryngitis. Now she began with a membranous or diphtheritic inflammation of the tonsils, which was follicular and soon subsided, passing rapidly into the larynx. Tracheotomy was performed, but she died on the ninth day of the disease.

Analysis of Nine Fatal Cases.—There were four boys and five girls. The various ages were—one at 2, three at 3, one at 4, two at 5, one at 9, and one at 10 years old. The treatment in one case was refused. In four there was no local treatment. In the remaining four the antiseptic method was imperfectly performed (partly due to delay in the early stage, and partly to the resistance of the patients).

Complications.—Whooping-cough in a girl aged 2. Severe type of influenza in two girls aged 3 and 4. A scarlatina rash occurred in one case, a typhus rash occurred in another, and a measles rash in a third.

Some of these cases began, not with a swollen tonsil and one large patch of membrane, but with small and separate round specks of membrane. This has been termed "FOLLICULAR TONSILLITIS," which is misleading, as it does not imply the membranous or diphtheritic condition, which is more serious, but only limits the affected area. Many cases of laryngeal diphtheria commence as apparently slight forms of this "follicular tonsillitis," therefore one dare not neglect a "follicular tonsillitis" till the tonsil is normal and the voice clear, as the laryngeal symptoms may commence suddenly and be very persistent. I have seen a case spreading both to the larynx and even to the anterior nares, while only a few spots remained on the tonsils.

Another misnomer is the term "DIPHTHERITIC," in the sense "not diphtheria," but something like it. A case must either be true diphtheria, whether malignant or mild, or else not diphtheria at all—it cannot be a hybrid. It is a mistake to call a scarlet fever throat diphtheritic. A scarlet fever throat almost invariably gets well as the fever subsides, and if abscesses form there must have been a very foul condition of the mouth.

"DIPHTHERITIC CROUP" is another unscientific term. In fact, some say that all croup is diphtheritic. In this I cannot agree. Diphtheritic membrane dissolves at once in lactic acid. Croupous membrane is unaffected by either lactic acid, liquor potassæ, or hydrate of soda. With these facts, how futile are the applications of bicarbonate of soda recommended in tracheotomy. What a placebo! The old pathological distinction between croup and diphtheria was, that the membrane in croup is an exudation which can be detached without erosion of the mucous membrane; whereas diphtheritic membrane is part of the infiltrated mucous membrane forming a slough, and inseparable without erosion and even bleeding. It is doubtless a difficult question, but we ought to speak of laryngeal diphtheria and laryngeal croup, and, as far as possible, distinguish between them. Diphtheria is primarily a tonsillar affection, and the laryngeal affection is a secondary form. Croup shows itself primarily with laryngeal symptoms.

LARYNGISMUS STRIDULUS or FALSE CROUP is usually considered as a spasmodic nervous affection of the vocal cords. I believe it is closely associated with true croup. It is a very common disease; occurs frequently in the same child. It is always associated with exposure to cold. In many cases, except for its sudden onset, it is not to be distinguished from true croup. At the Cape it is common, and is there associated with hot, dust-laden air, and is always relieved by a dose of oil or glycerine. Here one usually gives hot drinks, hot poultices, steam kettle, and a full dose of bromide (10 to 20 grains). Bromide produces sleep, and especially with belladonna relieves the harsh, irritable cough. Some cases are quite well next day, but a large majority of them have a laryngeal cough lasting a few days. Everything points to an inflammatory *versus* a spasmodic affection. There is a striking resemblance to the cough of true œdema of the epiglottis.

About two years ago Dr Enraght and I attended a case of "false croup." The child next day was worse, and it evidently became true croup. In twenty-two hours the child died. It was impossible to follow any special treatment, as there were no external comforts. The child died comfortably without a struggle; the respiration gradually slowed. We had a post-mortem, and made longitudinal sections of the larynx. The anterior or faucial surface of the epiglottis was perfectly clean from membrane, but the epiglottis was swollen. The larynx contained a false membrane passing down below the vocal cords. The membrane was thickest and most adherent at the under or posterior surface of the epiglottis, it became thinner as it went lower, while the advancing edge was like a semitransparent exudation. No germs were found by staining sections. Thus the under surface of the epiglottis was the primary seat of the disease, which proved to be true croup, although in the early stage it had all the signs of "false croup." I had always felt that the pathology of laryngismus was a matter of speculation, but this case was most clear. From these facts I have no hesitation in advancing the view, that laryngismus stridulus or false croup is *an acute epiglottitis.* It is probably an early stage of true croup.

Dr Hughlings Jackson is the chief advocate of the nervous aspect of laryngismus from a new point, the supervenosity of the blood. In the *British Medical Journal,* March 5, 1892, he says, "The paroxysms are asphyxia fits, analogous to those producible artificially in rabbits and dogs." He considers a relationship between rickets and this disease, but I think laryngismus is too widespread to be limited to rickety children. "Asphyxia fits are easily producible in the lower vertebrates of the mammalian class by mechanical arrest of the breathing. These seizures the physiologist tells us are owing to discharge, beginning in the (medulla) respiratory centre, a discharge started by highly supervenous blood; the discharge then beginning no doubt spreads to other centres." "Since, according to my hypothesis, in laryngismus the blood, when it has become rapidly supervenous, discharges the respiratory centre, and thus secondarily causes still more supervenosity by fixation of the thoracic cage, it may seem that the fit on this hypothesis would become rapidly fatal." But experiments on animals show that if the experiment remains only a short time the animal revives. "Horsley and Semon consider that the fits of laryngismus are due to a discharge beginning in a part of the cortex laryngeal centre. They have found representations of the adductors of the vocal cords in the cortex." Unfortunately for these theories, "they found that enforced closure of the glottis causing supervenosity acts on the *ab*ductor centre." This brings about the opposite condition of what they believe occurs in laryngismus, namely, increased *ad*duction or spasm of the vocal cords.

This is a very able exposition of the nerve mechanism of laryngismus, if due to spasmodic closure of the vocal cords. There are, however, objections to the supposed cause.

1. The type of cough in a laryngismus is deep and hoarse, as when the cords are *ab*ducted. The cough with *ad*duction of the cords would be high-pitched and sharp.

2. Would closure of the cords or spasm produce cough at all? Is not cough produced by hypersensitiveness of the mucous membrane? Lunatics who have loss of sensation pass through bronchitis and pneumonia without once coughing.

3. The cart is put before the horse. "The blood becoming rapidly supervenous discharges the respiratory centre," producing the closure of the glottis. But what is the cause of the supervenosity? The closure of the glottis is the present accepted *cause*, but now it is to be the *result* also of the supervenosity.

4. The physiologists found that supervenosity stimulated the *ab*ductor centre, which is the exact opposite of the nerve theory which Dr Jackson advances.

Therefore I maintain that the asphyxia fits *cause* the supervenosity, and that the supervenosity, by stimulating the abductor centre, illustrates Nature righting itself by throwing open the glottis.

Finally, what is the cause of the asphyxia fit? The present idea, spasm of the vocal cords, is, I believe, unsupported by direct evidence. From my post-mortem I consider it due entirely to an inflammation of the sensitive epiglottis. The suddenness of the onset, the barking cough, the choking, and the painful lump in the throat, all point to an epiglottitis.

A fit of laryngismus resembles a coughing fit when a crumb gets down the wrong way. When this latter happens, there is no question as to the supervenosity which occurs. The crumb is the cause and the supervenosity the effect, not the reverse. In laryngismus and in crumb-choking the under surface of the epiglottis is irritated, and by its closure causes supervenosity. In laryngismus the irritant is cold air, and the more the child coughs and chokes the more it draws in cold air,—hence the soothing action of the steam-kettle. Similarly the soothing action of oil or glycerine in the parched mouth where dry dusty air causes laryngismus. As the attack passes off, a laryngeal catarrh lasting two or three days commonly follows. This points to extending inflammation, and lends no support to the nervous or spasmodic theory of the disease.

The Treatment of Diphtheria,

Though differing in detail, must be on the principle of accurate antisepsis of the mouth, nares, and larynx, by scientifically tested remedies. On account of the rapidity of growth the antiseptics must be frequently applied. Considering the constitutional aspect of the disease, internal remedies ought to be given in severe cases. When children resist, 20 or 30 grains of salicylate of soda can be put in a pint of milk without detection.

By experiment I found the following drugs *prevented* the *growth of the diphtherococci* in sterilized gelatine:—

Boracic acid,	2 per cent.
Salicylate of soda,	5 ,,
Hydrarg. perchlor.,	1 to 5000
Carbolic acid,	1 to 400
Creolin (Jeyes),	1 to 400
Resorcin,	1 to 400
Liq. ferri perchlor. fort.,	2 per cent.
Hydrochloric acid (sp. gr. 1·16),	5 ,,
Lactic acid (sp. gr. 1·21),	1 ,,
Chloride of zinc,	½ ,,

The non-irritating drugs can be used much stronger.

By experience I would recommend for mild cases 25 to 30 per cent. of boracic acid in glycerine, well boiled to expel the water out of the glycerine and to make a *glyceride* instead of a simple mixture or solution.

For malignant cases one might use 2 parts of lactic acid, 40 to 50 parts of boracic acid, and glycerine up to 100 parts, well boiled. This is very useful, as children will suck it for the pleasant taste, and may be given very liberally. The lactic acid dissolves the membrane, the boracic destroys the micro-organism and encourages healing.

Among drugs similarly tested I found the following *useless*:—

Chlorate of potash (sat. sol.),	10 per cent.
Liq. potas. permang.,	20 ,,
Chloride of lime,	2 ,,
Sulphurous acid,	5 ,,
Hydrochloric acid,	1 ,,
Sulphocarbolate of soda,	20 ,,
Acid phosph. dil.	10 ,,
Sulphite of soda,	10 ,,

The Use of Alcohol.—For seven or eight years I never used alcohol, and the cases did well. Then came a period when highly trained nurses administered it on their own account, and I grew lax. Now I am more particular, and if possible avoid it. It "stimulates," whatever that means, but the patients seem weaker in pulse afterwards, and it has to be kept up in increasing doses.

One child, aged 4, received from a nurse two ounces of brandy in six hours. It died the next day, so brandy did nothing to save it, and the query in my mind was, whether it did not so unhinge the brain as to lessen the rallying force? Alcohol increases capillary congestion by dilating the small vessels. Thus the blood-pressure falls and the heart beats more rapidly, sending, of course, a smaller quantity of blood through at each beat. Must not this tell on the already weakened heart? Is not the heart stimulated to overwork at a time when it wants rest? Anything that weakens the system gives the germs increased facility for multiplying in the body.

I have usually relied on guarana. It saves nerve and tissue waste. It supports the system. It removes all sense of fatigue and takes the place of food. It acts like caffein, thein, etc.

I have previously advocated the use of pilocarpin hypodermically, $\frac{1}{25}$ of a grain. I believe it restores the secretions, eliminates the diphtherin, and by promoting the buccal and other secretions, loosens the membrane in the trachea and nares. I must, however, emphasize the immediate depressing action in full doses. For example, a medical friend at my suggestion injected $\frac{1}{5}$ of a grain in a child of 9 when the larynx and anterior nares were invaded. The immediate effect was great vital depression, tossing about the bed, and complete blindness, even to strong lamplight. These symptoms passed off, and the patient made a good recovery. I have, however, injected $\frac{1}{10}$ and $\frac{3}{20}$ in a child of 4 with good effect. I much prefer now to give by the mouth and in small doses $\frac{1}{100}$ to $\frac{1}{50}$ of a grain repeated.

In the advanced stages, when failure of heart threatens, strychnine is useful. I have given 2 m. hypodermically to a child of 3 every four hours. Perhaps strychnine is the true antidote to diphtherin.

Oxygen I used in one fatal case, on the theory of decomposing by oxidation the deadly poison diphtherin. But it had no such effect, yet it gave comfort in relieving the asphyxia. Evaporation of creasote, cresoline, and steam carbolic spray, are of undoubted value in clearing the respiratory passages.

Tracheotomy.—In the last stage, the period when I have done it, death is not averted on account of the diphtherin accumulating and acting on the medulla. The few days of prolonged life are hours of misery, and the sufferer ought to be spared and allowed to die in peace. When the larynx and trachea are invaded and death threatens, then is the time to ask, Will tracheotomy save? In early days I would have said Yes, until I had the following experience:—About ten years ago I had two malignant cases, a boy and a girl, each about seven or eight years old. In both cases larynx and anterior nares invaded; death seemed imminent. In each case I urged tracheotomy, and was refused by both. Though apparently quite hopeless, I persevered the more with the various remedies and gradually defeated the enemy, and both children are now living. In each case there were nerve symptoms for a long term, squints, ataxic gait, loss of tendon reflex, and paralysis of the palate, difficult swallowing, etc. Since then I have shunned tracheotomy, and I am convinced many a case has recovered which would have died if it also had to contend with tracheotomy. To the advocates of tracheotomy, who *at most* can only show a salvation of 30 per cent. of their operations (the same obtained by Prof. Spence in Edinburgh thirty years ago), I can only ask how many more would have lived if they had been spared the operation?

Special Points of Interest in Diphtheria.

There are various types of diphtheria. Dr Thorne mentions in his book the prevalence of mild sore throats, follicular tonsillitis, and *nasal catarrh* during epidemics. He believes that these mild cases work up to a point when the epidemic assumes a fatal type. I strongly support his opinions by my own observations. I had, however, never associated the nasal catarrhs with the epidemic. During epidemics I should roughly estimate we would treat eight or ten mild membranous throats to one of the malignant or severe form. Most of these cases would keep about, some going to school. The general features of such cases would be—temp. 100° to 103° on the first day, normal next day; throat, tonsils swollen and painful, with yellow exudation in large patches or specks; great muscular weakness following the attacks. These cases got well quickly, and I usually prescribed HCl gargles.

Cultivations in gelatine yielded the same cocci that I found in malignant cases, but they were attenuated, for in two or three pigeon inoculations they produced only slight symptoms.

Diphtheria cannot be divided into less than *three classes*:—

Mild, which gets well of itself.

Severe, which necessitates careful treatment, or it would progress to the third, or

Malignant form, in which life has to be fought for hour by hour. In this type the larynx and nares are invaded, and there is risk of death by syncope or by accumulation of diphtherin gradually paralysing the medullary centres.

There is *never a crisis in diphtheria*, thus differing from scarlet fever, pneumonia, etc. There is apparently no antidiphtherin like the antitoxin of pneumonia. The *diphtherin* or special toxin is *accumulative* and not self-destructive at any period, hence the special danger to life. There appears to be a distant affinity between *scarlet fever and diphtheria*. Thus some of our worst cases had a scarlatina rash at varying periods of the disease, followed by desquamation; while, on the other hand, some eruptions were like measles.

Those who use the sphygmograph will be interested to notice that the occurrence of the *predicrotic wave is the first omen of convalescence*. I pointed this out in my M.D. thesis ("Original Research with the Sphygmograph," Edin. Univ., 1883) in relation to typhoid and other fevers. The same occurs in diphtheria. During the progressive stage THE PULSE keeps at or above 140, with *marked dicrotism. The first sign of convalescence is a fall to about* 110 *beats and predicrotism.*

The heart sounds more than in other fevers get feeble and muffled.

There is more tendency to faintness and syncope than in any other disease, partly due to *diphtherin poisoning of the medulla*, but also, as has been shown, by *true fatty degeneration of the heart muscle. Degeneration* has also been shown to occur in any *of the nerves*, thus causing the paralysis.

I have increasingly learned the great importance of the recumbent position in all diphtheria cases, to avoid faintness and economize strength. I would strongly emphasize *always to watch the pulse*, and pay no regard to temperature in diphtheria.

There is much made of *tendon reflex* nowadays. It has been proved by Dr C. S. Sherrington to depend on the fifth lumbar posterior root, or the fourth and fifth anterior lumbar nerves. I have never seen a severe case of diphtheria that did not lose the tendon reflex, and have seen it disappear even in mild cases.

Diphtheria was formerly a rural disease, now it is urban, or more correctly suburban in its haunts. Of the whole country, London alone claims about one-third of the deaths. The deaths in England and Wales began in 1871 at 2525, of which 344 occurred in London. With a steady increase they reached 5368 in England and Wales in 1889, of which 1616 occurred in London. To the many supposed causes I would add the bad building and bad drainage which notably prevails round London.

I would specially emphasize the following points:—

Recognition of mild cases of diphtheria.

Rigorous antisepsis of the whole area possible to be invaded.

In malignant cases to be warned by the first signs thereof,—viz., continued reformation of white or yellow exudation, with or *without* extension of area.

In malignant cases to repeat the cleansings hourly till abatement of the disease.

The recognition of diphtheria as a constitutional disease, and therefore the administration of internal remedies.

The importance of noticing *the pulse rate*, and discarding the temperature chart.

The avoidance of alcohol.

The value of *strychnine.*

To give up tracheotomy as hopeless in the last stage, on account of diphtherin poisoning of the medulla.

On invasion of the larynx, to persevere with strong antiseptic inhalations, which can alone save, especially if aided by small doses of pilocarpine.

To spare the patient the suffering of tracheotomy as unnecessary at the beginning of laryngeal infection, and useless towards the end.

VII.—STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY.

II. Clinical Notes of Four Cases, and Description of Two Specimens of General Dropsy of the Fœtus.

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(*Read before the Obstetrical Society of Edinburgh, 6th February* 1892.)

(*Continued from page* 67.)

Morbid Anatomy of Specimen B.

A. *External Appearances.*

As in the case of Specimen A, a water-colour sketch was made of this, the third dropsical fœtus to which Mrs A. gave birth. In its external appearances it was, save in the matter of size and sex, an almost exact copy of Specimen A. There was the same anasarcous state of the integuments, the same swollen condition of the abdomen, and the same deepening of the normal grooves on the limbs and lines on the face. The skin had nearly everywhere a pinkish hue, but in some places it was pale yellow in colour. There was pitting on pressure all over the body, but this was specially marked on the head and legs. The right foot was seen to have been partly torn from the leg at the ankle,—a fact which demonstrated the friability of the tissues, for no great traction had been made upon the presenting part. The breech and right leg were more congested in appearance than the rest of the body, and this was accounted for by the circumstance that the presentation had been pelvic. The left labium minus was much swollen and congested.

The fœtus was a female, and weighed 1·3 kilogr. With the exception of the general œdema, there were no external malformations or deformities.

The *measurements* were as follows:—The total length was 35 cms., whilst from vertex to symphysis pubis it measured 23 cms. The head measured 28 cms. in the O.M. circumference, 26 cms. in the O.F., and 25 cms. in the s.O.B. The cranial diameters were—O.M., 10 cms.; O.F., 9 cms.; s.O.B., 8·5 cms.; Bi-P., 7 cms.; and Bi-T., 6·5 cms. The circumference of the thorax was 24·5 cms., and that of the abdomen 26·2 cms., whilst the transverse diameter of the former was 8·2 cms. and of the latter 10 cms. The circumference of the upper arm was 7·5 cms., of the forearm 5·8 cms., of the thigh 10·5 cms., and of the leg 8 cms. The two sides of the body were equally swollen from the œdema.

The Placenta and Membranes.—The placenta was strikingly similar to that in Case A. It had a very blanched appearance, quite unlike the normal afterbirth. The maternal surface was much broken up into lobules, and had a flocculent appearance. Threads of tissue were seen crossing over the sulci between the lobules. At one end of the placenta, not far from the aperture in the membranes, were two large hæmorrhages: one was about 3·5 cms. and the other about 4·2 cms. in thickness. These did not greatly resemble the usual placental hæmorrhagic infarcts, but it seemed rather as if the tissues were here bathed in blood and stained with it. These hæmorrhages had no doubt given rise to the bleeding during labour. The fœtal aspect of the placenta was also anæmic in appearance, and had a pale pinkish colour. The circumference of the placenta measured 53 cms.; it was not circular in outline, but had a length of 20 cms. and a breadth of 13 cms. At its thickest part it measured 4 cms. The umbilical cord was swollen, and had a more distinctly yellow colour than is normal. It was inserted eccentrically, being 4·2 cms. from the nearer, and 8 cms. from the more distant margin of the placenta. It was not near the hæmorrhagic part of the mass. The *membranes* seemed less transparent than usual, and on the outer surface of the chorion were numerous decidual fragments and pieces of blood-clot.

B. *Pathological Appearances of the Viscera, etc.*

I. *Naked-eye Appearances.*—The characters of the regions of the body and of the viscera may be described in the same order as in Case A. Since the differences between the appearances of the organs in Cases A and B are very slight, it will not be necessary to enter into full details in this instance.

Vertebral Column.—The spinal column and the contents of the canal were normal; there was no spina bifida, and no distension of the canal of the cord. The ossification was well advanced for the age of intra-uterine life. The spinal column measured 17 cms. in length. The promontory of the sacrum was faintly marked.

The Region of the Head.—There was well-marked gelatinous anasarca of the tissue lying between the scalp and pericranium, but there was no separation of the latter from the bone. The anterior fontanelle measured 3·4 cms. antero-posteriorly and 2·4 cms. in a transverse direction. The ossification of the bones of both the vault and base of the cranium was normal. The membranes of the brain were anæmic, but not otherwise pathological in appearance. The brain also was markedly anæmic. The cerebral convolutions and fissures were normal for the period of development arrived at; there was no distension of the ventricles; and the cranial nerves were regular in position and of the usual number. There was a small recent hæmorrhage on the under surface of the right temporo-sphenoidal lobe and in the tentorium cerebelli. The pituitary body was normal.

The Region of the Neck.—The parts in the cervical region (the larynx, pharynx, trachea, œsophagus, and thyroid gland) were well developed and normal in appearance, but were displaced slightly upwards.

The Region of the Thorax.—The thymus gland, which was paler in colour than usual, had a vertical measurement of 1·5 cms., a transverse of 1·8 cms., and an antero-posterior of ·8 cm. It was normal in form. The pericardial sac contained about 2 cubic cms. of a pale yellowish fluid. The heart had a vertical measurement of 3·2 cms., a transverse of 2·5 cms., and an antero-posterior of 1·8 cms. The chambers and orifices were normal, save that the foramen ovale was slightly less patent than is usual. The membrane seemed at first sight to close the aperture, but closer investigation showed that the closure was only apparent, and that there was really a free means of communication between the two auricles. The ductus arteriosus was patent. The cardiac muscular walls were anæmic in appearance. In the right pleural cavity were 10 cubic cms., and in the left there were about 2 cubic cms. of straw-coloured fluid. The lungs were markedly pale in colour. The greatest vertical measurement of the right lung was 4·5 cms., and that of the left was 4 cms. There was no abnormality in the form of these organs. The bloodvessels of the thorax were normal, and the thoracic duct was present in its usual position. There was one ossific centre in the sternum, and that was in the manubrium.

The Region of the Abdomen.—Before the abdominal cavity was cut open the fluid contents were drawn off for examination. The peritoneal sac contained 150 cubic cms. of a yellowish-brown fluid, slightly darker in colour than that in the pleural and pericardial cavities. In this fluid the total proteids amounted to 0·087 (a very small proportion), and consisted chiefly of serum albumen, with a small amount of globulin. The fluid gave the colour reactions of bile-pigment, and on separation with plumbic acetate and rectified spirit gave with sulphuric acid a bright green pigment—biliverdin. Microscopically the fluid was found to contain endothelial cells and acicular crystals of bilirubin grouped together in stars. Dr Noël Paton was kind enough to examine the fluid for me.

When the abdomen was opened it was seen that the intestinal coils lay well above the brim of the pelvis, the cæcum and ascending colon lying at a higher level than is usual. On the left side, however, the descending colon was seen passing downwards and forming a sharp bend with the large sigmoid flexure, which lay across the pelvic brim and became continuous with the rectum. Such was the position of the intestines, that on opening the abdomen the posterior abdominal wall was visible in its lower part, and the uterus, ovaries, and tubes could be clearly seen. In this instance, as in Case A., the bowels had evidently been displaced upwards and backwards, and the peritoneal fluid had occupied the lower and anterior part of the cavity.

The stomach measured 4·5 cms. in length, and contained a few drops of a pale green-coloured stringy mucus. The whole intestine measured a little over 150 cms. in length, and the colon and rectum were greatly distended with the dark green-coloured meconium. The small intestines were somewhat narrow in calibre, and contained little meconium; they had no great range of movement, not on account of any peritonitic adhesions, but from the small size of the mesentery. The vermiform appendix measured 2·5 cms. in length, and was normal in appearance. The liver was normal in form, and had the following dimensions:—Maximum transverse, 8·7 cms.; max. vertical, 5·7 cms.; and max. antero-posterior diameter, 3·8 cms. The hepatic tissue was paler in appearance than is normal. The spleen had its natural form, and measured 4·4 cms. vertically, 2·4 cms. antero-posteriorly, and 1·6 cms. transversely. It also had a somewhat pale and anæmic appearance, being less deeply purple than is usual. The kidneys were normal in position and form, and each measured 2·5 cms. vertically, 2 cms. transversely, and 1·3 cm. antero-posteriorly; they were very pale in colour. The supra-renal capsules were in their natural fœtal position, and each measured 2·2 cms. vertically, 2·1 cms. transversely at the base, and 1·2 cm. antero-posteriorly. The pancreas was pale, but seemed otherwise normal. The bladder was empty; the hypogastric arteries and urachus were normal; but the ureters seemed slightly expanded in their calibre.

The Region of the Pelvis.—The external genital organs, especially the labia majora, were markedly œdematous; but the uterus, ovaries, and tubes had their normal fœtal characters.

The Extremities.—Save for the œdema of the subcutaneous tissue and the anæmic appearance of the muscles, the limbs were normal. The ossification was as far advanced as was to be expected at this age of fœtal life. There were no indications of syphilitic changes in the long bones, and there was ossific nucleus in the lower end of the femur.

II. *Microscopic Appearances.*—The tissues were prepared for microscopic examination in two ways: the harder organs were cut in the freezing microtome, and the softer parts—placenta, spleen, thymus, etc.—were embedded in paraffin, and then cut and mounted. They were compared with similarly prepared organs from a normal fœtus that died during labour from head compression.

The Skin.—Under the microscope it was seen that the network of the subcutaneous tissue had an opened-out appearance. The papillæ of the derma were not yet well marked. Many hair follicles and sebaceous glands in process of development were visible. A few non-sinuous sweat ducts were to be seen, and on the skin surface was the vernix caseosa. In the subcutaneous layer were many lymphoid cells, and these probably represented an early stage of the connective-tissue formation. The lobules of subcutaneous adipose tissue were not so numerous as in the skin of the full-time infant, but they were not abnormally few in number for the stage of fœtal life arrived at in this case.

The Muscles.—The striation of the muscle fibres was well marked. There were not many red blood corpuscles in the vessels between the muscle bundles, but an unusually large number of white cells was present.

The Lungs.—Only here and there in the pulmonary tissue was a partially expanded alveolus; by far the greater part of the lung was atelectatic.

The *heart-muscle* and *thymus* gland revealed nothing abnormal in their structure, save a general anæmic state.

The Liver.—The lobular arrangement of hepatic cells round the central vein was masked by the presence of a very large number of white cells, which lay between the lobules and between the rows of liver cells. The bloodvessels had somewhat thinner walls than usual. The liver cells were not so regularly polygonal as usual. The capsule was normal. The organ was anæmic.

The Spleen.—There appeared to be no increase in the trabecular framework of the spleen, but there were great numbers of nucleated white corpuscles everywhere present. Red corpuscles in process of formation were also present, but in comparatively small amount.

The Kidneys.—There was marked anæmia of the renal tissue, but the glomeruli and tubules appeared normal. The supra-renal capsules were anæmic, but otherwise normal.

The Placenta.—The most marked changes in the placental structure were found in the villi, which were much larger than is usual in a six months' placenta. The increase in size seemed to be due chiefly to œdema, but in many of the villi there was also a greater amount of connective tissue than is normal. The epithelium covering the villi seemed normal,—perhaps slightly œdematous. The bloodvessels had a healthy appearance, but there were evident signs of anæmia throughout the whole placental tissue. The bloodvessels of the umbilical cord were normal.

Specimen A was investigated in the Obstetrical Department of the University of Edinburgh, while the dissection and microscopical examination of Specimen B were carried out in the Laboratory of the Royal College of Physicians, Edinburgh.

DESCRIPTION OF PLATES.[1]

PLATE I.—External Appearances of Fœtus with General Dropsy. Specimen A. ($\frac{2}{5}$ natural size).

PLATE II.—Vertical Mesial Section of Fœtus with General Dropsy; left face shown. ($\frac{1}{2}$ natural size.)

a, Anterior fontanelle; *b*, Œdematous scalp tissue; *c*, Hæmorrhage in falx cerebri; *d*, Posterior fontanelle; *e*, Cerebellum; *f*, Pituitary body; *g*, Basi-occiput; *h*, Posterior arch of atlas; *i*, First dorsal vertebra; *j*, Thymus gland; *k*, Fluid in pericardium; *l*, Liver; *m*, Pancreas; *n*, Pylorus; *o*, Fluid in peritoneum; *p*, First sacral vertebra; *q*, Umbilical cord; *r*, Tunica vaginalis testis; *s*, Penis; *t*, Trachea.

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[1] These Plates appeared in the number of the Journal for July.

PLATE III.—Fig. 1. Left lateral sagittal Section of Fœtus with General Dropsy, right face shown. (½ natural size.) *a*, Clavicle; *b*, Scapula; *c*, Left lung; *d*, Heart, left ventricle; *e*. Liver; *f*, Spleen; *g*, Stomach; *h*, Left supra-renal capsule; *i*, Left kidney; *j*, Fluid in peritoneum; *k*, Sigmoid flexure; *l*, Ilium; *m*, Head of left femur; *n*, Umbilical cord; *o*, Intestine.

Fig. 2. Transverse Section at level of first Lumbar Vertebra. (½ natural size.) *a*, First lumbar vertebra; *b*, Vena cava inferior; *c*, Duodenum; *d*, Gall bladder; *e*, Liver; *f*, Fluid in abdomen; *g*, Œdematous tissue of abdominal wall; *h*, Right kidney.

Fig. 3. Transverse Section at level of first Sacral Vertebra. (½ natural size.) *a*, First sacral vertebra; *b*, Rectum; *c*, Ureter; *d*, Ileum; *e*, Abdominal fluid; *f*, Œdematous tissue.

III. General Dropsy of the Fœtus.

In the preceding pages the pathological anatomy, naked-eye and microscopic, of two specimens of general dropsy of the fœtus has been described, and clinical notes of these and of two other cases have been given. It is now necessary, before drawing any conclusions as to the origin and cause of this disease, to group together the results obtained by the various writers who have investigated this subject. Some sixty-five specimens have been described by about fifty-eight observers, whose names, together with the titles of their papers, will be found at the end of this communication. In only a few cases have I been unable to consult the record in the original. In order to economize space the individual cases will be referred to by number. General dropsy as it occurs in the single, not in the twin, fœtus, is now under consideration.

Clinical History.

An analysis of the clinical details in the recorded cases brings out some interesting facts, but it must be borne in mind when estimating the value of these that in many instances such details were incomplete and in some entirely wanting. Among the questions in the clinical history which were specially investigated were the previous general and obstetrical history of the mother, and her state during the pregnancy and labour which terminated in the birth of a dropsical infant, the general history of the father, and any incidents in the family history which appeared to be of value.

A. *Age of Mother.*—In nearly every case in which the age was noted the mother was well advanced in her child-bearing life when she gave birth to a dropsical infant. In six cases only was the age less than 30,—23 years (63), 24 years (56), 25 years (29), 28 years (29, 62), and 29 years (45); in all the others it was 30 or more,—30 years (15, 28, 40), 31 years (27), 32 years (58), 33 years (49, 55), 34 years (30), 35 years (34, 61), 36 years (35), 37 years (66), 42 years (17, 19, 67), 44 years (33).

B. *Previous General Health, etc.*—Prior to the pregnancy which terminated in the birth of a dropsical infant some mothers had enjoyed good health, whilst others had always been delicate or had suffered from serious illnesses, but the number of cases in which details upon these points were given was small. Those in which the previous general health was stated to have been good were Nos. 17, 19, 28, 40, 63, 66, and 67; those in which it was noted that the mothers had had syphilis were Nos. 16, 39, and 47; and those in which there had been long-continued delicate or bad health were Nos. 27, 30, 34, 43, and 45. In one or two cases it was noted that the mother was of a phlegmatic and bilious temperament (7, 29), and in one she was alcoholic (21). Pulmonary complaints were mentioned in the records of Nos. 27, 40, and 42, and stomach troubles in No. 30.

C. *Sexual History of Mother.*—1. *Menstruation.*—In only a few cases was there any note of the menstrual type and habit of the mother. In No. 17 menstruation began at 15 and was always regular; in No. 27 the flow was at first regular, but afterwards became small in quantity and irregular (this may have been due to the pulmonary disorder); in No. 30 there were menstrual anomalies; in No. 45 the menses began at 15, were first regular, but became irregular later; in No. 64 they first appeared at 16, were regular but profuse (lasting eight days); and in my cases (Nos. 55 and 66) and in No. 67 the menstrual history was good.

2. *Previous Pregnancies and Labours.*—In several of the reported cases full details of the past pregnancies were given, *e.g.*, in Nos. 34, 37, 40, 43, 45, 49, 61, 64, and 67.

With regard to the *number of past pregnancies*, in only one of the recorded cases was the mother reported to be primiparous (No. 57); in all the others she was multiparous, and had usually had a large number of gestations. Thus, she was a ii.-para in Nos. 26, 29 (*b*), 62, and 63; a iii.-para in Nos. 27 and 37; a iv.-para in Nos. 9, 19, 36 (*a*), 43, and 45; a v.-para in Nos. 29 (*a*) and 36 (*b*); a vi.-para in Nos. 33, 40, 58, and 61 (first of three dropsical infants); a vii.-para in Nos. 13, 28, and 35; an viii.-para in No. 61 (second dropsical infant); a ix.-para in Nos. 17, 34, 49, 55, 61 (third dropsical infant), and 67; and in my cases (Nos. 55 and 66), the ninth, tenth, and twelfth pregnancies ended in the birth of dropsical fœtuses.

In many cases no details of the *characters of the previous pregnancies* were given, but in some they were forthcoming. In No. 13 the six previous gestations had all ended prematurely; in No. 17, from the eight previous pregnancies had resulted seven healthy infants and one that had died of jaundice; in No. 19 the first had been a living infant, the second a dead one at the full term, and the third a dead one at the seventh month; in No. 27 the two previous gestations had produced two living but scrofulous children; in No. 29 (*b*) the preceding pregnancy had terminated prematurely; and in No. 30 the first gestation ended in the birth of a living healthy infant, and the second in twins that died at birth. In No. 31 there were first several healthy infants and then two dropsical in succession; and in No. 33 there were five earlier pregnancies, of which the fourth ended in the artificial delivery of a hydrocephalic fœtus accompanied by hydramnios and a large placenta. No. 34 had an interesting history. The first child was a healthy male, then came two miscarriages at the third month, then a healthy full-time female, then an abortion at the sixth week, a full-time female that was jaundiced and died in three days, then a still-born female at the twenty-sixth week, and finally a still-born male also at the twenty-sixth week. In No. 36 there were first two healthy infants and then three premature children at about the sixth month. In No. 37 the dropsical infant was preceded by a living healthy child and a dead-born premature one. In No. 40 the first child lived nineteen days, the second five and a half months, the third and fourth were still alive, and the fifth, a male, died in sixteen days. In No. 43 there was first a miscarriage and then two healthy infants, still alive. There were three previous pregnancies in No. 45, and all the infants died of convulsions, the first at the ninth month, the second at the sixth, and the third at the third. In No. 49 there were first four normal gestations, then in the fifth version was necessary for a full-time dead infant, the sixth and seventh ended in the birth of dead infants, and the eighth came to a premature end with molar degeneration of the placenta. In Löhlein's cases, as reported by Fuhr (Nos. 58 and 64), the previous obstetrical record was interesting. The first child, a female, was weak, rickety, and scrofulous, and died of meningitis when four years old; the second, a female, born at the full term, died of fits at the sixth month; the third, a full-time male, died of general weakness; the fourth, a female, born at the thirty-sixth week, died in two days with ascites; and the fifth was a female born at the full term and still alive. In Cohn's case (No. 61) the five first pregnancies ended in abortions; the sixth at the eighth month in a dropsical infant with commencing maceration and a large dropsical placenta; the seventh in a normal living child; the eighth at the seventh month in a dead dropsical fœtus with œdema of placenta; the mother had œdema and dyspnœa in all her pregnancies, and suffered from chronic nephritis. In No. 63 there was one previous healthy infant; and in No. 67 there were eight full-time children, all of whom were alive, save one that died from long duration of labour. The history in my cases has been already given; it resembled that in Nos. 34, 61, and 64.

3. *Present Pregnancy.*—In the majority of the cases some details of the pregnancy which ended in the birth of the dropsical fœtus were forthcoming.

As regards the *age of the gestation when labour set in*, it was found that in many cases the infant was prematurely born. The pregnancy terminated at the fourth month in No. 5; between the fourth and fifth months in No. 2; at the sixth month in Nos. 12, 36 (*a* and *b*), and 66 (*b*); at six and a half months in No. 34; during the seventh month in Nos. 16 (*a*), 19, 24, 27, 35, 46, 49, and 57; during the eighth month in Nos. 3, 9, 10, 13, 17, 29 (*a* and *b*), 31 (*a*), 40, 47, 51, 56, 61, 63, and 66 (*a*); and at or near the full term in Nos. 4, 7, 8, 16 (*b*), 26, 28, 33, 37, 43, 45, 60, and 62.

The *health of the mother during pregnancy* was seldom said to be quite good. Usually she suffered from one ailment or another. *Maternal dropsy,* limited or widespread in area, was a comparatively common complication. Its presence was specially noted in Nos. 5, 13, 14, 27, 30, 33, 34, 40, 45, 47, 56, 61, 64, and 67; and its absence in Nos. 4, 7, 8, 9, 11, 12, 15, 16 (*b*), 17, 19, 21, 29 (*a* and *b*), 31, 35, 36, 37, 49, 63, and 66. The unusually great degree of *distension of the mother's abdomen* during the pregnancy was also a frequently noted symptom. This condition was in part due to the large size of the fœtus and placenta, but it was also produced by the hydramnios which so often was found as a concomitant state. *Hydramnios* was specially mentioned in Nos. 11, 12, 17, 27, 28, 29 (*a*), 31, 33, 34, 35, 37, 42, 49, 57, 61, 62, 64, and 66 (*a* and *b*). There was a slightly increased quantity of liquor amnii in No. 67. In a few cases there was not much amniotic fluid (Nos. 40, 43, 45, and 56). The great size of the mother's abdomen was also mentioned in some cases in which there was no note as to the presence or absence of hydramnios, as in Nos. 8 and 9, and in one in which the liquor amnii was small in amount (No. 45). *Albuminuria* was noted in certain cases, and in these instances it may be remarked that maternal dropsy was also a prominent symptom (Nos. 27, 34, 45, 56, 61, and 64). In No. 37, in which there was only a slight trace of albumen in the urine, there was no maternal œdema.

In one or two cases maternal *anæmia* was noted as a marked condition during pregnancy (Nos. 49, 66, and 67); in No. 40 there was a hydræmic or leukæmic state of the blood; and in none of these instances was there albuminuria, although in one (No. 67) there was localized œdema.

Hepatic derangements were noted in Nos. 27, 34, and 67; headache was specially mentioned in Nos. 7 and 45; and pulmonary congestion and bronchial catarrh were present, in addition to other morbid states, in Nos. 26 and 27. In Nos. 15, 19, and 29 (*a* and *b*) a fall occurred during pregnancy, and in No. 15 the fall was followed by strangury and retention of urine. In one case (No. 54 *c*) the mother suffered from malaria, and in two (Nos. 30 and 64) she had heart disease. In Nos. 16 (*b*), 19, 39, and 47 there were signs of maternal syphilis during pregnancy, but in the great majority of cases it was especially stated that this disease was not present. In one of the older cases (No. 4) it was noted that the mother had drunk copiously of beer, and she was alcoholic in No. 21. In No. 49 peritonitis existed during gestation, and proved fatal after delivery.

Very rarely was any mention made of *peculiarities in fœtal symptomatology* during pregnancy. Weakness of the fœtal movements was noted in No. 8; and in No. 27 the motions were never violent, and diminished in intensity and ultimately disappeared after a mental shock which the mother received. Feeble movements were also observed in Nos. 31 (*b*) and 57. In No. 17 there were no signs of life for twenty-four hours before delivery, and in a few other cases it was known that the infant was dead before labour set in.

4. *Characters of Confinement.*—In most cases more or less full details are given of the confinement, and in many instances the labour was tedious or instrumental.

Abnormal *presentations* were unusually common. The head presented naturally in Nos. 8, 13, 28, 29 (*b*), 31 (*a*), 33, 34, 35, 37, 43, 50, 56, 57, 61, 63, and 64, and the presentation was probably normal in several cases in which no mention is made of the circumstance. The breech presented in Nos. 19, 40, 66 (*b*), and 67, and the feet in Nos. 17, 27, 45, and 51. In Nos. 29 (*a*), 30, and 49 there was a shoulder presentation, and in No. 47 the fœtal umbilicus was the part first felt at the os uteri. Out of twenty-eight cases in which the presentation was noted, in twelve it was preternatural. It must not, however, be concluded that the abnormal character of the presentation was due solely to the disease of the fœtus, for in eleven out of the twelve cases in which some part other than the head presented there was the element of prematurity to be taken into account.

The labour was most commonly greatly delayed, but in Nos. 26 and 66 (*a*) the confinement was rapid. In several cases there was delay, but ultimately the difficulty was overcome by the unaided natural efforts (Nos. 29 (*b*), 31 (*a* and *b*), 34, 35, 43, 45, and 56). Usually the head or a foot (according to the presentation) was expelled by the uterine force alone, but then great delay occurred, and the trunk remained firmly wedged in the pelvic canal. Sometimes the difficulty was overcome by making firm and prolonged traction upon the protruded part by the hands (as in Nos. 8, 28, 50, 64, and 66 (*b*)); or with a hook in the axilla or groin (as in Nos. 37 and 40). Sometimes the use of forceps was needed to extract the head (Nos. 13 and 61); and in other cases version was first employed to convert a transverse presentation into a footling (Nos. 10, 29 (*a*), 30, 47, and 49). In many cases, however, none of these measures was sufficient alone, and paracentesis abdominis fœtus was required in order to reduce the bulk of the infant and make it possible for it to pass through the pelvic canal (as in Nos. 17, 27, 33, 47, and 49). In some instances paracentesis abdominis did not suffice; the evisceration of thorax and abdomen and the separation of the head had to be effected before complete delivery took place in No. 63, and the detached head had to be craniotomised and extracted with the cranioclast in No. 67. In one instance (No. 13) accidental paracentesis abdominis occurred through tearing of the tissues of the anterior abdominal wall; this was followed by escape of the fluid and delivery. In a good many cases the birth of the infant was rendered still more difficult by the great friability of its tissues, as in Nos. 27, 33, 40, 49, 57, 63, 64, 66, and 67. Finally, in one of the older cases (No. 15) the mother's bladder had to be punctured before the child could be born.

The third stage of labour was usually rendered somewhat difficult on account of the large size of the placenta; but this was not invariable (*e.g.* Nos. 31, 64, and 66). The after-birth had in several instances to be extracted manually, and sometimes in fragments, as in Nos. 17, 19, 29 (*a*), 40, 47, 49, and 67. In one or two cases it was noted that there was considerable hæmorrhage both before and after the birth of the placenta (No. 34).

5. *Characters of Puerperium.*—In by far the greater number of the cases the mother recovered quickly and completely from the effects of the pregnancy and labour, the puerperium being quite normal (Nos. 13, 17, 26, 27, 29 (*a* and *b*), 30, 31, 33, 34, 40, 45, 57, 61, 63, 64, and 66 (*a* and *b*). In the cases in which maternal dropsy, albuminuria, or hepatic disorder had existed in pregnancy, these morbid states rapidly disappeared after the birth of the child (Nos. 26, 30, 34, 45, 61, and 64). In two or three cases only did death occur: from peritonitis in No. 49, from nephritis three weeks afterwards in No. 56, and from puerperal fever and vulvar diphtheria on the tenth day in No. 67.

6. *Later Obstetrical History.*—In very few of the recorded cases was there any note of the clinical history of the mother after the confinement which had terminated in the birth of a dropsical infant, but in one or two instances information bearing upon this very interesting question was forthcoming. In No. 29 a new pregnancy quickly followed the birth of the dropsical infant, and at the seventh month of this gestation the patient had an attack closely resembling that from which she had previously suffered and which had caused premature labour; she had the symptoms of peritonitis, but under treatment these passed off, and the woman was delivered at the full term of a healthy infant and a slightly diseased placenta. In No. 40 the mother afterwards gave birth to a normal child. In No. 57, in which three dropsical fœtuses had been born to the same woman, another pregnancy occurred in which there was neither maternal albuminuria nor dropsy, and this terminated at the third month in the expulsion of a macerated fœtus and a small placenta with a very thick decidua serotina. In No. 64 two pregnancies followed the birth of the dropsical infant: the first ended at the third month in the expulsion of an abortive ovum 5 cms. in diameter without any trace of a fœtus, but with a slight degree of molar degeneration, and the second had at the time of writing advanced normally to the sixth month.

D. *Medical History of the Father.*—Details of the medical history of the father are rarely found in the records of cases of fœtal disease, and this is specially true of those relating to cases of general dropsy. In No. 17, however, it was noted that the father had suffered from jaundice, and that during his wife's pregnancy he had died from dropsy and asthma. The father in No. 57 showed no signs of syphilis, and in No. 64 he was of alcoholic habits, but had not suffered from venereal disease or skin eruptions. In No. 63 there was found the note that there was no history of cancer on the father's side, and in No. 67 the remark that the father was free from syphilis. The state of the health of the father in my case (No. 66) has been already given.

E. *Clinical History of the Infant.*—The clinical history of the dropsical infant was always very imperfect, for it seldom survived its birth by more than a few hours. With regard to its *sex,* it was a male in Nos. 1, 2, 3, 5, 19, 24, 30, 31 (*a* and *b*), 34, 35, 54, (*b*), 63, 66 (*a*), and 67; and a female in Nos. 4, 7, 40, 42, 43, 45, 54 (*c*), 56, 57, 64, and 66 (*b*). In the other cases the sex is not given. In some instances the infant was born alive and survived for a short time: for a few days in No. 4; for twelve hours in Nos. 11 and 16 (*a*); for ten hours in No. 28; for a few hours in Nos. 7, 8, 43, and 62; for one hour in Nos. 16 (*b*), and 24; and for a few minutes in Nos. 10 and 13. In other cases it was still-born and could not be resuscitated although the heart beat for some time (Nos. 26, 30, 31 (*a* and *b*), 34, 35, 40, 45, 47, and 66 (*a* and *b*). Sometimes it was alive during labour, but died on account of the instrumental delivery, as in Nos. 17, 37, 49, 56, 57, 63, 64, and 67; and occasionally it had succumbed before the confinement (Nos. 19, 33, and 61). In yet another group of cases labour occurred before the fœtus had arrived at a viable age (Nos. 2, 5, 12, 36, and 66 (*b*).

PATHOLOGY.

The morbid anatomy of the fœtus and placenta now fall to be considered, and in this relation it may be noted that whilst some writers have given very full descriptions of the diseased infant and its after-birth, others have contented themselves with recording scarcely more than the bare fact that a dropsical fœtus was born. The most valuable dissections are those recorded in Nos. 5, 16 (*a* and *b*), 17, 24, 30, 33, 34, 35, 37, 39, 41, 43, 45, 50, 51, 54 (*a*, *b*, and *c*), 56, 57, 60, 63, 64, and 67.

A. MORBID ANATOMY OF THE FŒTUS.

I. *Macroscopic Characters.*

The *weight* and *measurements* of the fœtus were not often recorded; but when they were noted it was always found that they were larger than they ought to have been for the age of pregnancy arrived at. In length the fœtus measured four fingers in No. 1; six inches in No. 5; more than an ell in No. 9; 15 inches in No. 30; 41 cms. in No. 40; 42·8 cms. in No. 43; 49 cms. in No. 45; 46 cms. in No. 49; 41 cms. in No. 56; 51 cms. in No. 64; 43 cms. and 35 cms. in No. 66 (*a* and *b*); and 44·5 cms. in No. 67. The weight of the infant was from 16 to 17 lbs. (French) in No. 8; about 3 lbs. in No. 10; 2950 grammes in No. 40; 3180 grammes in No. 45; 3100 grammes in No. 49; 2200 grammes in No. 56; 3320, 2900, and 3100 grammes in No. 61; 3490 grammes in No. 63; 3810 grammes in No. 64; 1300 grammes in No. 66 (*b*); and 3000 grammes (without fluid and cranial contents) in No. 67.

In some eleven cases more detailed external measurements of the dropsical infants were given (Nos. 24, 43, 45, 54 (*a*, *b*, and *c*), 56, 64, 66 (*a* and *b*), and 67). In No. 24 it was stated that the circumference of the abdomen was about 42 cms.; in No. 43 that of the head was 33 cms.; in No. 45 the cranial circumference was 36·5 cms., the O.M. diameter 14·5 cms., and the O.F. 10 cms.; in the three fœtuses described by Hönck (No. 54) the thoracic diameters were given; in No. 56 the large cranial circumference was 34 cms., that of the abdomen 36 cms., whilst the measurements of the limbs showed that those of the right side were markedly greater than those of the left side; in No. 64 the head circumference was 33 cms., the O.M. diameter 12 cms., the s.O.B. 9 cms., the Bi-P. 9 cms., the Bi-T. 8½ cms., the circumference of the shoulders 37 cms., and of the abdomen 51 cms., etc.; the measurements in No. 66 (*a* and *b*) are recorded elsewhere; and in No. 67 the diameters of the head, shoulders, etc., were greater than is usual at the eighth month of pregnancy.

A *general dropsical state of the subcutaneous tissue* was the most evident and most constant macroscopic condition found in this disease of the fœtus. It was noted in all the cases (Nos. 1 to 67). The specimens were variously described as universally dropsical; generally, very, or altogether œdematous; extremely or universally anasarcous, etc. It was sometimes stated that certain parts of the body were specially dropsical, as the scalp (Nos. 2, 17, 30, 31, 34, and 61), the face (Nos. 19, 28, 35, and 67), the limbs (Nos. 13, 19, 26, 37, and 61), and the scrotum (No. 31). Usually the subcutaneous effusion was described as serous in character, sometimes as resembling partly congealed gelatin (Nos. 5 and 66), and sometimes as sanguinolent (Nos. 16 and 36). The fact that pressure caused deep pitting of the surface of the body was often noted, as was the oozing of a serous fluid from superficial cuts and tears of the integument. In some cases the great hardness of the skin was described, and in one case it was said that so tense was the integument that the limbs could not be bent without tears occurring. In one case (No. 30) it was said that the serous fluid contained albumen but no sugar; and in another (No. 45) the skin was described as much thickened and in a state like elephantiasis. So great was the œdema in some cases as to cause positive deformity (Nos. 30, 35, 43, and 67). In a few instances the anasarca was accompanied by the presence of vesicles or blebs on the skin-surface (Nos. 19, 33, and 64). The existence of a cephalhæmatoma was noted in Nos. 41, 54 (*a*), and 66 (*a*), and there was some intra-cranial hæmorrhage in Nos. 45, 54 (*c*), and 66 (*b*). With regard to the colour of the skin, it was usually described as dusky red, livid, coppery, or pink. In my cases (No. 66, *a* and *b*) it was dark pink, with patches that had a glossy yellow appearance.

Another frequently noticed character of this disease was great *friability of the tissues*, especially of the subcutaneous, but also of the muscular and osseous. So marked was this in some cases (Nos. 47 and 57) that the authors named it in the general title of their papers. The friability of the parts was usually discovered during the extraction of the fœtus, when in several cases the tissues of the neck gave way (Nos. 33, 40, 56, 63, 64, and 67). In one instance (No. 13) tearing of the anterior abdominal wall took place; in another (No. 47) the lower jaw was torn off; in others (Nos. 33, 47, 49, 57, 63, 66 (*b*), and 67) the limbs gave way; and in many cases the skin was lacerated in various places. The friable character of the tissues was probably due to their sodden condition, for the skin, subcutaneous, muscular, and fascial structures were all infiltrated with serum. It will be seen later that usually the placenta and umbilical cord were also œdematous and easily torn.

In the great majority of the reported cases the presence of *fluid in the pleural, pericardial, and peritoneal cavities* was noted. In only one or two instances was the state of the serous cavities not mentioned (Nos. 51, 54 (*b* and *c*), and 60. The presence of fluid in the abdominal cavity was a very constant feature, and the effusion was described as clear, straw-yellow, light yellow, brownish yellow, olive-green, clear green, citron coloured, or brownish in colour, and transparent in character. Sometimes (Nos. 34, 36, and 56) it was noted that there were flakes of lymph floating in the fluid. Occasionally the remark was made that the effusion was albuminous (Nos. 30, 35, and 37); and in one of my cases the proportion of proteids was very small, and there was bile-pigment present (No. 66, *b*). In several specimens there was serous effusion in the pleural sacs as well as in the peritoneal (Nos. 3, 15, 16 (*a* and *b*), 19, 20 (*a* and *b*), 21, 22, 28, 34, 35, 36, 41, 43, 45, 46, 50, 54, 56, 57, 62, 64, and 66), and the fluid was clear yellow serum. In many instances there was also hydropericardium (Nos. 16 (*b*), 19, 20 (*b*), 21, 24, 28, 30, 34, 35, 36, 41, 43, 46, 50, 54 (*a*), 56, 57, 62, and 66). In one or two cases there was hydrocele (Nos. 19, 31, 35, and 66 *a*); and in a small number of specimens hydrocephalus (Nos. 22, 24, 30, 33, 45, and 50). In Nos. 50 and 64 there was also spina bifida. The quantity of fluid in the abdomen was occasionally given: three pints (Paris) in No. 8; two pounds in No. 24; 500 grammes in No. 49; 450 grammes in No. 56; 200 cub. cms. in No. 64; and 150 cub. cms. in No. 66 (*b*). There were 100 cub. cms. of fluid in the thorax in No. 64, and 12 cub. cms. in No. 66 (*b*).

The complete dissection of the dropsical fœtus was not always made; but in the more recently reported cases a thorough post-mortem was usually carried out.

The *appearances presented by the viscera* were far from being uniform, indeed they varied within wide limits. Perhaps the most frequently recorded character was a general bloodlessness of the organs; this was noted with regard to some or all of the viscera in Nos. 5, 14, 16 (*a*), 41, 56, 57, 66 (*a* and *b*), and 67. The *brain* was in some cases found to be pale, in others congested, and the same statement was true of the cerebral membranes; but in a large proportion of cases these structures were not described. In Nos. 5, 16 (*a*), and 56, the brain was pale; in Nos. 16 (*b*), 20 (*b*), and 30 it was congested; in Nos. 24, 33, 41, and 63 the cerebral or spinal membranes were œdematous; and in Nos. 56, 57, 63, and 64 there were meningeal hæmorrhages.

The *heart* was stated in some instances to be normal (Nos. 20 (*b*), 34, 37, 45, 56, 57, 64, and 66); in other cases it was pale and anæmic; but in a small group of specimens it was the seat of disease or malformation (Nos. 30, 35, 43, and 60). In No. 30 there was transposition of the cardiac vessels, along with a defect in the septum of the ventricles, narrowing of the pulmonary orifice, and the signs of fœtal endocarditis; in No. 35 there was a closed condition of the foramen ovale, whilst the ductus arteriosus was widely patent, and the same condition was found in No. 60; and in No. 43 there was persistence and stenosis of the truncus arteriosus communis, and defect in the septum of the ventricles (*cor triloculare biatriatum*). In one or two cases the displacement of the heart by the distension of the abdomen was noted (Nos. 24 and 66); and in some instances cardiac hypertrophy was described: of the right ventricle in No. 54 (*b* and *c*), and of the left in No. 63. A thin-walled condition of the large blood-vessels was mentioned in Nos. 30, 41, 56, and 66.

The *lungs* were nearly always described as unexpanded or imperfectly distended. They were said to be healthy in Nos. 16 (*b*), 28, 34, etc., œdematous in Nos. 5 and 20 (*b*); pneumonic in No. 20 (*a*); pale and very dense in No. 30; and solid in No. 62. There was cystic dropsy of the right lung in No. 45.

The *thymus* gland was not often referred to; but in one or two cases it was described as pale and anæmic, and in No. 30 it was said to be imperfectly developed.

A diaphragmatic hernia leading to compression of the vena cava inferior was noted in No. 50, and a spurious left-sided one existed in No. 64.

Signs of *peritonitis* were found in Nos. 19, 20 (*b*), 28, 30, and

46; but in several cases it was stated that there was no evidence of this disease.

The *liver* had no constant appearances. It was small in Nos. 16 (*a*), 30, 34, and 43; larger than normal in Nos. 17, 20 (*b*), 31, and 41; anæmic in Nos. 5 and 36; congested in No. 45; soft and friable in Nos. 17, 31, 34, and 36; firm, contracted, or cirrhotic in Nos. 30, 43, and 56; and it had a small third lobe on the left side in No. 64. The liver, like the other abdominal viscera, was transposed in No. 30; and it showed fatty degeneration at some points in No. 57.

The *spleen* also varied in the appearances which it presented. In some cases it was large (Nos. 19, 20 (*b*), 31, 41, 43, and 56); in No. 30 it was relatively small; it was congested in No. 45, and friable in No. 31; and it was firmer in consistence than normal in Nos. 30 and 43. Enlargement of the mesenteric glands was mentioned in No. 19. The *intestines* were usually described as small and contracted with a short mesentery (Nos. 17, 30, 31, 34, 41, 45, 56, 63, and 66); they contained but a small quantity of meconium, and occupied only a small part of the abdominal cavity. The *pancreas* was rarely mentioned, once or twice it was described as pale and anæmic (No. 56), once as small and denser in consistence than normal (No. 30), and once as studded with purpuric spots. It was transposed like the other viscera in No. 30.

From an etiological point of view the state of *the kidneys* ranked next in importance to that of the heart. In some cases the renal organs appeared normal to the naked eye (Nos. 24, 34, 41, 64, and 66); in one instance they were said to be small, soft, and pale (No. 56); in No. 30 they were finely granular, and of greater density than normal; and in Nos. 54 (*b*) and 63 they were the seat of complete cystic degeneration and were greatly enlarged. In No. 63 the renal vessels were very small and atrophied, and in No. 57 the left ureter was dilated.

The *bladder* was usually described as healthy, sometimes as pale, and sometimes as containing a little non-albuminous urine. A structure supposed to be a remnant of the primitive kidneys was described in No. 43.

There was a uterus septus with vagina duplex in No. 54 (*c*), and in No. 30 there was an undescended testicle on the left side; but in the other specimens the *genital organs* were probably normal. It was sometimes stated that the *muscles* were pale and bloodless (Nos. 30, 56, 66); but in other instances there were numerous purpuric spots in their substance (No. 16 *a* and *b*). It was in a few cases noted that the *bones* were soft and easily broken (Nos. 30 and 57); in No. 57 also there was pseudo-anchylosis of the scapulo-humeral and coxo-femoral joints; in No. 64 there was talipes varus; and in No. 67 a condition like talipes equinus. Curvature of the spine was described in No. 54 (*a* and *c*). The limbs were rigid and flexed in No. 62.

II. *Microscopic Characters.*

In only seven cases was there any record of a microscopical examination of the tissues of the diseased fœtus (Nos. 34, 39, 41, 56, 63, 66 (*a* and *b*), and 67). In No. 34 the liver was examined, and it was found that there were no well-formed hepatic cells, although the nuclei were present in abundance. In No. 39 there was a syphilitic sclerosis of the arteries of the skin, muscles, liver, and kidneys; their lumen was much diminished, the intima was normal, the muscularis hypertrophied, and the adventitia thickened. The microscopical examination of Jakesch's specimen by Klebs and Eppinger (Nos. 40 and 41) revealed a leukæmoid, if not perfectly leukæmic condition. The kidneys showed a large quantity of lymphoid elements lying between the uriniferous ducts and Müller's capsules, whilst the ducts themselves were normal; the cords of the splenic pulp contained lymphoid cells in such number as to appear as if composed of them; in the liver there was an aggregation of similar cells in the interspaces; and there was the same engorgement with lymphoid elements in the lungs, in the transversely striped muscles, and in the skin. In Sänger's specimen (No. 56) there was also congenital leukæmia. The peritoneal fluid contained numerous large leucocytes as well as red cells and peritoneal endothelium; the white corpuscles of the blood were increased in number, so that there was one white to three red cells; the splenic pulp consisted almost entirely of leucocytes, most of them with large nuclei and several nucleoli; the liver was crowded with white cells grouped in masses, so that in each acinus there were several of these lymphomata radially arranged round the central vein, and in some places they were nearly as numerous as the liver cells themselves; and, finally, the marrow of the bones was made up almost entirely of leucocytes. Sänger considers Jakesch's specimen and his own as examples of congenital splenic or spleno-myelogenous leukæmia. Similar microscopic appearances were presented by my two specimens (No. 66 *a* and *b*); but the lymphoid infiltration was not so great as that described by Klebs and Eppinger and Sänger. In No. 67 the renal tissue showed a diffuse infiltration with white cells, most marked in the medullary portion of the organ. So intense was this at the apices of the papillæ that one could scarcely recognise the structure of the tubes of Bellini, the epithelium of which was desquamated, or destroyed, or devoid of nuclei; but in the cortex the infiltration was limited to small groups of tubules and glomeruli, and the epithelium was well preserved. The white cells were leucocytes, some polynucleated, others with one large nucleus. A similar condition was met with in the liver: the hepatic capillaries were crammed with white cells; the liver cells had a very granular protoplasm, and some were atrophic and without nuclei. There was nothing of interest in the spleen. The osseous tissue was normal, and there were nowhere any traces of micro-organisms. In No. 63 the microscopical examination of the cystic kidneys was given. The small cysts lay in a stroma of mucous connective tissue richly vascularized; some of them were formed from the excretory tubules, others from the capsules of the glomeruli; and the epithelium which lined them was a single layer of flat cells.

B. Morbid Anatomy of the Placenta and Umbilical Cord.

I. *Naked-eye Characters.*

The macroscopic characters of the placenta were very much the same in all the cases in which they were described. In all the cases its large size was noted; it was said to be three times as large as normal in Nos. 33 and 40, and was described by the writer in No. 37 as the largest he had ever seen; it weighed more than 3 lbs. in No. 17, 3½ lbs. in No. 37, 1920 grammes in No. 49, 900 grammes (but more immediately after expulsion) in No. 56, 2900 grammes in No. 61, 1075 grammes in No. 63, 1100 grammes in No. 64, and 1200 grammes in No. 67; its thickness was stated to be 2¼ inches in No. 29 (*a*), 3 cms. in Nos. 64 and 67, and 5 cms. and 4 cms. in No. 66 (*a* and *b*); and its diameters were 21 by 18 cms. in No. 64, 19 by 17 in No. 66 (*a*), 20 by 13 in No. 66 (*b*), and 27 by 23 in No. 67.

The placenta was described as soft in consistence, œdematous, and easily torn in the majority of the cases (Nos. 17, 27, 33, 34, 35, 37, 40, 45, 46, 49, 51, 56, 61, 63, 64, 66 (*a* and *b*), and 67). In No. 29 (*a* and *b*), however, there was no serous effusion into the placenta, which was perhaps due to the fact that the infants were dead before birth; there was thickening and softness of the parenchyma. In No. 30 there was an unequal development of the placental lobes, and there were numerous apoplectic infarcts or placental thromboses, some recent, some old; but in most of the other cases hæmorrhages into the after-birth were not described. In a few instances (Nos. 31 (*b*) and 57) the placenta was described as normal to the naked eye. In many cases the anæmic appearance was also referred to, and in No. 40 Jackesch, with what he himself termed a somewhat daring freedom of imagination, compared the birth of the placenta to the slow rolling forth of wool from an over-filled torn woolsack. In several instances the broken up character of the after-birth was noted (Nos. 17, 30, 33, 37, 40, 45, 47, and 66).

The appearances of the umbilical cord were not often stated, but when they were given they were found to be very similar in all the cases. The cord was usually thick and œdematous, often friable (Nos. 17, 47, 57, 63, and 66), and sometimes inserted into the placenta near to one side of that organ. No abnormality of the vessels of the cord was mentioned in any of the cases of dropsy of the single fœtus.

In one instance it was stated that the chorion and amnion were thickened (No. 30); in No. 64 they were described as normal; but in no other case was there any allusion to their characters.

II. *Microscopic Characters.*

In only five cases was there any description given of the microscopical structure of the placenta (Nos. 34, 51, 56, 66, and 67). In No. 34 the placental tufts were thin and badly developed, and the epithelium at their extremities was ill defined and insufficiently developed; in No. 51 the villi were changed in form from increase in size, and there was hyperplasia of the epithelium, the stroma, and the vessels; in No. 56 there was unusual swelling of the connective tissue of the villi, their epithelium was mostly lost, and their capillaries contained leucocytes in the same disproportionately large amount as in the fœtal blood; and in No. 66 (*b*) there was swelling of the villi, increase in their stroma, and some degree of œdema of their epithelial covering. In No. 67 it is stated that no micro-organisms were present in the placenta.

The clinical history and the morbid anatomy of general fœtal dropsy have been given, and one is therefore now better able to approach the difficult subject of the etiology and nature of this disease.

(*To be continued.*)

Part Second.

REVIEWS.

Les Tumeurs de la Vessie. Par M. Albarran, Paris, 1892.

"L'important ouvrage que j'ai la satisfaction de présenter au public médical est consacré à une question de chirurgie toute moderne." M. Guyon, in the opening sentence to the preface of M. Albarran's book, thus draws attention to an important feature in this work. A new field has been opened in vesical surgery during the last five years by the introduction of the perfected cystoscope—with light internal—as a diagnostic agent in genito-urinary disease, and it is perhaps in the diagnosis of tumours of the bladder that the instrument has its chief value. When we consider what was known five years ago, and what we know now of the frequency and character of bladder neoplasms, we are compelled to recognise that, as Albarran shows, we entered upon a new epoch in 1888. Surgeons up to that year made diagnostic incisions—often of value still—into the bladder with a double object: 1, to form a diagnosis; 2, to treat, when possible, the condition. Now that is in great part changed, and in the majority of cases the diagnosis and probability of removal are arrived at by cystoscopy, not by cystotomy. The book which we have under consideration gives the most complete account of vesical tumours that has been published, and is worthy of an extended notice.

M. Albarran at the outset gives an historical *résumé* which is interesting and valuable. He then discusses problems which are important regarding all tumours, viz., etiology and pathological anatomy. He adopts a classification which is based on an anatomical consideration of the bladder, and is the simplest and best which has been suggested. It is the classification of a pathologist guided by pathological anatomy, with, however, a full regard for clinical fallacies. Concisely the classification is as follows (*v.* p. 44):—

1. Tumeurs nées de l'épithelium
   - Papillomata.
   - Epitheliomata.
2. Tumeurs nées du tissu conjonctifs
   - Groupe atavique
     - Sarcomata.
     - Myxomata.
     - Fibro-myxomata.
   - Groupe adulte—Fibromata.

   Annexe aux tumeurs conjonctifs—Angiomata.
3. Tumeurs nées du tissu musculaire—Myomata.

   Tumeurs hétérotopiques
   - Dermoid cysts.
   - Chondromata.

With this classification as a basis the author proceeds to consider the pathological anatomy in detail. He shows statistically from a consideration of 88 cases which he has personally observed, and from the observations of others, that tumours are most frequently single, and that their site is usually the inferior third of the bladder, the trigone, however, seldom being implicated. From a consideration of 78 cases he recognised two methods of attachment of epithelial tumours to the bladder wall: 1, the *implanted;* 2, the *infiltrated.* Of the former some are pedunculated, others sessile,—the former are not necessarily benign, as out of 28 cases, 15 were malignant, 13 benign. The sessile are rare—9, all malignant, in the 78 cases (*v.* table, p. 58). The infiltrated forms may be recognised macroscopically, but frequently microscopical examination alone shows that infiltration of the muscular coat has occurred.

The author refers (pp. 61–70) to the mode of propagation of epithelial tumours, and states that general infection is rare,—1st, from the mode of development, viz., in many instances a probable transition—as in the larynx—from simple to malign; 2nd, from the mechanism of death in the patient, viz., renal and urinary causes, *e.g.*, septic absorption.

On consideration of those cases which he has personally observed, and from a study of the observations of other authors, Albarran concludes that epithelial tumours are of much the most frequent occurrence, and that sarcomata and myomata are rare. In a most instructive table at page 165 he gives:—

"Statistics of primary tumours of the bladder which I have personally examined with the microscope.

Simple epithelial,	13
Malignant,	68
Fibromata and fibro-myxomata,	2
Sarcomata, myxomata, and myxo-sarcomata,	3
Myomata,	1
Angiomata,	1
Total,	88"

After quoting other authors, who give a very similar ratio, he says Nitze is the only author whose statistics materially differ, he giving the ratio as 30 papillomata, 17 epithelioma, and 1 sarcoma. This discrepancy is, however, readily explained by Albarran when he says,—" In the great majority Nitze made no microscopic examination, but gave the diagnosis papilloma from cystoscopic examination only." As we have elsewhere pointed out, in the majority of cases such a conclusion cannot be arrived at cystoscopically, but requires verification by microscopic examination.

The important subjects of symptomatology and prognosis are considered in detail. In many cases the diagnosis that a tumour is present may be easy from the clinical history, but the whole question is much simplified by the cystoscope. The author rightly lays great stress on *hæmorrhage* being the first and only symptom in very many patients, and impresses the view that such hæmorrhage comes on suddenly without any cause, is unaffected by treatment, disappears suddenly, and is associated with no other symptoms. Further, that many months may elapse between attacks of hæmorrhage (*v.* table, p. 184). An aid to diagnosis may be the presence of characteristic cells in the urine, but these, the author states, are *very rarely* discovered. This view is, no doubt, contrary to the opinion of some of the older surgeons, but after an experience of 23 cases we agree with M. Albarran. Apart from the above, as a rule, nothing else assists, except cystoscopy, short of cystotomy, although pain, cystitis, etc., may make the presumption of a tumour being present more probable.

At pp. 221–275 the subject of *Cystoscopy*—its history, value in diagnosis and prognosis—is very fully considered, and the rules which the author formulates are valuable as an aid to the use of this important instrument. M. Albarran attributes to the cystoscope the highest place in the rôle of diagnosis, saying, in effect, that nothing else is of any value.

The latter part of the work is chiefly a consideration of the treatment of tumours of the bladder, and in this part, even more than in the preceding portion, the author quotes largely from the writings and experience of his master M. Guyon, the distinguished chef of the Necker Hôpital. The operative procedure of *supra-pubic* cystotomy is advocated, and the various methods of carrying it out are reviewed and the details of procedure discussed. The use of *Petersen's* rectal bag is deservedly advised as a means to raise the bladder high up out of the pelvis, thus freeing a larger portion of its anterior surface from the peritoneal covering, and at the same time bringing it within reach of the surgeon. The position of the patient introduced by Trendelenburg is advocated until the bladder is opened, and the surgeon is duly warned that one chief risk is injury to the peritoneum, while safety is insured by all incisions being made *close to the pubis.* The actual treatment of the tumour is that usually adopted in this country, but the after-treatment of the wound—primary suture or not—is modified. The author, while admitting that the question is still *sub judice*, agrees with Guyon, that a partial closure and the introduction of a double tube is advisable—the tube to be removed on the third day, and a soft catheter introduced per urethram. By this method very rapid union (10–14 days) is obtained.

The more severe procedure of partial resection of the bladder is described, but the success of this measure has not been great, although if the tumour be situated on the anterior aspect of the bladder where the wall is uncovered by peritoneum, the risk of removal by complete resection of the portion affected would not be greatly increased.

This work is well arranged and critically written. It is full of valuable information, and from the practical experience of the author will form a trustworthy guide to others in the diagnosis, prognosis, and treatment of vesical tumours. The woodcuts and plate engravings are excellent, the latter in particular being very beautiful. We believe the work will prove not merely an evidence of M. Albarran's careful and thorough work, but a lasting addition to the reputation of the Paris school, which is proud to acknowledge M. Guyon as its chief ornament.

Life in Motion, or Muscle and Nerve. A course of Six Lectures delivered before a Juvenile Auditory at the Royal Institution of Great Britain during the Christmas Holidays of 1891–92. By JOHN GRAY M'KENDRICK, M.D., LL.D., F.R.C.P. Ed., Professor of Physiology in the University of Glasgow, formerly Fullerian Professor of Physiology in the Royal Institution of Great Britain. London and Edinburgh: Adam & Charles Black: 1892.

ANY one with a knowledge of the outline of physiology will enjoy a perusal of this reprint of Professor M'Kendrick's Royal Institution Juvenile Lectures on "Life in Motion." The teacher will envy the lecturer his power of lucid exposition. It is, however, doubtful if such a reprint will be of much use or interest to the uninitiated. Diagrams are all very well—and they are most lavishly distributed throughout this volume—but, as Dr M'Kendrick admits, they cannot take the place of the actual experiments with which the course was illustrated, and without which the lectures lose much of their educational value.

The author covers much of the more important parts of physiology; and the relation of physiology to other sciences, and of the different parts of the science to one another, are ably elucidated.

In the first lecture we have a general consideration of the various forms of movement throughout the universe, and their relationship to the movements of living beings. This is one of the best parts of the volume, and is full of suggestive touches. What is said, too, on the method of study is most wise, and it would be well did all teachers bear in mind this remark on the value of education in science—"This does not consist, as is often erroneously supposed, in merely acquiring a knowledge of facts, but also and more, in learning to reason correctly, and in cultivating the use of the imagination.

The methods of recording and studying movements are perhaps dealt with at too great length in the second lecture, but undoubtedly they are of importance in approaching the consideration of the various kinds of movements and changes in shape which a muscle can undergo. These questions, as well as the physical properties and structure of muscle, are dealt with in the third lecture. Then follows a consideration of the connexion between muscle and nerve, the way in which nerve acts upon muscle, and the nature of the changes set up in muscle which causes the evolution of energy during contraction. This leads to the consideration of the utilization of the energy for mechanical work and heat production, and the relationship of these two processes to one another. In this connexion Dr M'Kendrick has to point out that modern research goes to show that muscle is not so economical a machine as was at one time supposed, and that some of the new gas-engines compare favourably with it.

A discussion on the source of the energy of muscle involves an exposition on the outlines of dietetics. In conclusion, the phenomena of fatigue and the production of electricity in the animal body are dealt with in the same clear and popular style which characterises the volume throughout.

Lectures on Diseases of the Digestive Organs. By Dr C. A. EWALD, Extraordinary Professor in the University, and Physician to the Augusta Hospital, Berlin. Translated from the latest German Edition by ROBERT SAUNDBY, M.D. Edin., F.R.C.P. Lond., Physician to the General Hospital, Birmingham. Vols. I. and II., Lectures on Diseases of the Stomach. London: The New Sydenham Society: 1892.

ALTHOUGH Dr Ewald's book is so well known in its native dress and so widely read, yet the appearance in English of the two volumes dealing with gastric disorders calls for a warm welcome. The first of these volumes has been translated before from an earlier edition by Dr Saundby, the second has now for the first time been rendered into English. Dr Ewald always writes in a charming style,—a style, indeed, uncommon to many of his fellow-countrymen. He masses together the results of numberless experiments in a masterly manner, giving the reader the impression acquired from a perusal of details, without wearying him with their actual presentment. He does not, on the other hand, neglect the clinical side of his subject, and, in fact, the notice he extends to clinicists of our country and their work is remarkable,—accentuating, as it does, the difference between the style of investigation pursued in Germany or among us. He quotes as freely from English sources as English writers at present do from Germans, the articles quoted being chiefly clinical in their interest, not experimental or minutely chemical. Dr Saundby has succeeded very happily in the translation, both with regard to the style and the English, all the characteristic points of the original being retained. The book is eminently readable.

With regard to the contents of these two volumes, we need say little. In them are collected summaries of, and deductions from all the latest work on the subject. Dr Ewald might perhaps have emphasized more strongly the fact that an acidity which is normal in one individual, and causes him no inconvenience, is hyperacidity to another. And again, his remarks on the subject of gastric ulcers, wide-reaching as they are, fail to bring out the influence that relative excess of free acid has on their formation. The part devoted to the nervous diseases of the stomach is excellent, and the lines of treatment recommended throughout the book rational and well supported by clinical evidence. The study of gastric diseases has lately, we are glad to say, made very considerable progress in this country, and the opportune appearance of this book should stimulate all, and convince even the most empirical that minute and scientific study of disease leads to great results, and, moreover, that the fruits of such study may be presented in an interesting and taking form.

Differentiation in Rheumatic Diseases (so called). By HUGH LANE, L.R.C.P., M.R.C.S., Surgeon to the Royal Mineral Water Hospital, Bath, etc. Second Edition. London : J. & A. Churchill : 1892.

THE author has not been led to alter his views of rheumatic disease during the two years that have elapsed since the first edition of this book was published, rather he has seen much in support of the opinions which he then expressed. His chief contention is that rheumatoid arthritis, as generally known, consists really of two diseases—rheumatic arthritis following after acute or subacute rheumatism; and rheumatoid arthritis generally traceable to strumous habit and heredity, and characterized by great debility and anæmia. Both diseases are best treated early,—the first by ordinary "rheumatic" treatment, alkalies, baths, etc.; the second by feeding up and exercise, as far as that is possible. Otherwise the volume contains useful hints about the baths at Bath, and the proper way to take them. Dr Lane should, before the appearance of a third edition, remove sugar from his list of *nitrogenous* substances, in which he has included it, on page 51.

Student's Guide Series. The Diseases of the Nervous System. By J. A. ORMEROD, M.A., M.D. Oxon, F.R.C.P., Medical Registrar and Demonstrator of Morbid Anatomy at St Bartholomew's Hospital, etc. London: J. & A. Churchill: 1892.

IN this attempt to give to students a compendium of nervous diseases not nearly sufficient care has been taken to generalize. In a book of this sort we are sure that it is more useful and politic to group together symptoms due to similar lesions than to only classify them in connexion with diseases. That is to say, that instead of separating the description of reflexes, paralyses, and the reactions of degeneration, it would conduce much more to the proper understanding of the matter if the effects of interference, total or partial, with the different trophic realms were collected and explained in one place, and then, afterwards, when the individual diseases were discussed and the nature of the lesion pointed out, the train of necessary symptoms would become clear. Otherwise the book is well written, and the accounts of separate diseases clearly given. A little more time might have been profitably spent in describing the different forms of aphasia. The illustrations are numerous, and, though necessarily small, are clear. At the end of the volume the different motor points of the body are represented, after Erb and De Watteville.

Diseases of Infancy and Childhood. By J. LEWIS SMITH, M.D., Clinical Professor of Diseases of Children, Bellevue Hospital Medical College, New York, etc. Seventh Edition. London: H. K. Lewis: 1890.

THE appearance of a seventh edition of a text-book is a sufficient evidence of its value, and of its meeting a public demand. This edition has been thoroughly revised, and claims to be "virtually a new book." Much obsolete material has been excluded, and thus room has been found, without unduly increasing the size of the volume, for a great deal that was not included in earlier editions —such diseases, for instance, as icterus, sepsis, hæmatemesis, melœna, umbilical diseases and pemphigus of the new-born—while additional space is given to epilepsy and tetany, as well as to typhlitis and other diseases of the appendix and colon. A chapter on Intubation, with full details, by Dr O'Dwyer, has been added to the work. The more recent investigations relating to the bacterial origin of some of the local as well as constitutional diseases of early life are duly set forth. This book has long been known as one of the ablest and most trustworthy on the subject, and the latest edition is likely to add to its fame.

The Diseases of the Mouth in Children (Non-Surgical). By F. FORCHHEIMER, M.D. Philadelphia: J. B. Lippincott Company: 1892.

THE non-surgical diseases of the mouth, which are more or less confined to children, are so many and so important that Dr Forchheimer's excellent book seems to supply a want. It deals with a considerable number of subjects of interest to the medical practitioner, and does so in a clear and practical way.

In the first seven chapters, Stomatitis catarrhalis, S. aphthosa, S. mycosa, S. ulcerosa, S. gangrenosa, S. crouposa and S. diphtheritica, and S. syphilitica are described accurately and interestingly. Their differences are pointed out, and their relations to other maladies are discussed in a way which evidences not only a good knowledge of recent literature, but much careful personal observation and thought. With most of the views expressed we thoroughly agree, but he seems to exaggerate a little the danger of giving chlorate of potash, and surely it is not a universal experience "that mercury will produce stomatitis, and much more rapidly in children than in adults."

The eighth chapter is on Dentition, and is the longest in the book. After giving an account of the views of the older writers on this subject, and discussing the development of the teeth, the author goes on to give arguments bearing on the relationship between teething and the various maladies which have been attributed to its influence, and to state his own views. The arguments are not all very easy to follow; but his views are very plain, being summed up in the axiom, "Teething produces teeth, and nothing more."

On gum-lancing, Dr Forchheimer's views are equally straightforward, and are to the effect that it never does any good and usually does harm. Should any reader hold another opinion, he may be interested to find that the author's personal experience of the operation is confined to one case!

The remaining three chapters treat of the Tongue and Mouth in Disease of Remote Parts, Parotitis, and Mumps.

In conclusion, we may say that we have read the book with much interest and profit, and can heartily recommend it as a useful contribution to practical medicine. The only thing in it with which we have been disappointed is the lack of illustrations. There are few medical subjects which lend themselves so readily to pictorial illustration as the diseases dealt with here, and yet we have not even a single diagram. We hope that a second edition will be called for, and that when it comes it will be an illustrated one.

Prescribing and Treatment for Infants and Children. By PHILIP E. MUSKETT, Late Surgeon to the Sydney Hospital. London and Edinburgh: Young J. Pentland: 1891.

THIS book, which resembles in size and appearance the *Extra Pharmacopœia* of Martindale and Wescott, is arranged on a very similar plan. It is divided into three parts. Part I. contains in alphabetical order the names of most of the drugs which are used in the treatment of disease in childhood, with notes upon their use, dosage, and therapeutic value. Part II. treats in a similar manner the various diseases of childhood and infancy from the point of view of treatment only, and gives succinct directions for their management. Part III. contains a number of recipes for the preparation of sick-room necessaries, such as beef-tea, peptonised milk, white wine whey, etc. It is a handy and useful little book for students and junior practitioners.

Motherhood. By DR ALICE KER (MRS STEWART KER), Hon. Medical Officer to the Wirral Hospital for Sick Children, and to the Birkenhead Lying-in Hospital. Manchester and London: John Heywood: 1891.

THIS is an excellent little book addressed to women, with advice as to self-management from the cradle to the grave. Dealing especially, of course, with the subject of pregnancy, parturition, and lactation, and the management of infancy and childhood. Yet it differs *in toto* from our old familiar friends, Dr Chavasse and Dr Bull, in adopting an altogether higher standpoint. More than this, the subject is treated very seriously from the moral side; and, as is natural from the author's sex and profession, the training and development of women, so as to fit them to help themselves, is preached with no uncertain sound. One or two short quotations will explain this.

Page 27, for instance: "At the outset we are confronted by the anomaly, that while everybody talks of the necessity for a woman's being trained for her duties as a wife, no one ever heard of the proposition that a man should be trained for his duties as a husband." And again, p. 31: "So long as we teach our girls that their duty is to be modest and virtuous, and allow our boys to pursue an entirely opposite course, without suffering any loss of social recognition and distinction, it will be impossible to look forward to a better and purer state of morals among us." These give the key to the spirit in which the book is written. We can heartily recommend it.

The Disinfection of Scarlet Fever and other Infectious Diseases by Antiseptic Inunction. By J. Brendon Curgenven, M.R.C.S., L.S.A. London : H. K. Lewis : 1891.

This little pamphlet illustrates how far strong faith in a remedy may carry one. Its author believes that the inunction of a disinfectant composition, consisting of two or three essential oils of different densities, with thymol and camphor, dissolved in the oil of eucalyptus globulus, if commenced in the initial stage of scarlet fever, characterised by headache and vomiting, will prevent the development of the fever and the evolution of the rash, the patient so treated being quite restored to health in from twenty-four to thirty-six hours. If the case be in the first day of the rash, the fever subsides in twelve or twenty-four hours, no more rash appears, and the patient is quite well in two or three days. If begun later, the results are less marked. He smears the whole surface of the body night and morning for three days. After the third day the skin is anointed only at night, after a warm bath, for seven days, when this treatment ceases, and the patient joins the rest of the family. The oils applied to the surface produce a slight stimulating effect on the skin, with a sense of general warmth. Children, restless and sleepless with fever, go to sleep soon after the inunction, the temperature drops three to four degrees, and the pulse becomes less rapid. The evidence afforded in support of these remarkable statements is, however, hardly convincing to our mind, and we could scarcely advise our readers to let their patients, so treated, loose upon the world ten days after the onset of scarlet fever, even though all the rules laid down by Dr Curgenven were followed out to the letter. There would, we maintain, be serious risk to the patients themselves, even granting, which we are by no means prepared on the proof submitted to do, that infection to others is obviated by the method proposed. At the same time, inunction with good eucalyptus oil is apparently a useful adjunct to the now accepted topical disinfectant treatment of scarlet fever.

Mastoid Cases. By Clarence J. Blake, M.D., etc., Boston, U.S.A. Reprinted from the *Transactions of the American Otological Society*, 1891.

We have here an excellent description of the best operative treatment of diseases of the mastoid. The efficacy of the Wildes' incision as a purely antiphlogistic measure has led to its being depended upon in many cases where it should have been but the first step in a mastoid operation. Indeed, there are cases where drilling of the mastoid, under proper antiseptic precautions, was the only measure sufficient to meet the demand for a considerable and rapid depletion, and has been of the greatest service. Dr Blake, using leeches and cold applications as preliminaries, never makes a so-called Wildes' incision without both expecting and being prepared to go further. Viewing the operation from the standpoint of a simple surgical procedure, it may be said to be called for under the following conditions—*firstly*, as a means of phlebotomy; *secondly*, to check an inflammatory process in the mastoid and ward off its possible serious results; or, *thirdly*, to remove the consequences of the inflammatory process in the form of retained pus and necrotic bone. Then follow minute descriptions of the methods of carrying out the operation as necessary for any of the above three or other requirements, with the instruments and the author's mode of sterilizing them, the patient, the operator, and assistants.

It must be by no means overlooked, that while this region bears very hazardous relations to other important parts, recent experience has shown that their invasion is by no means so serious or possibly fatal a matter as was at one time supposed. Dr Blake precedes his operation on the mastoid by a free incision, when needed, in the posterior superior portion of the membrana tympani following the curve of its periphery, and on concluding the operation, just before dressing, he thoroughly douches the parts with very warm water, endeavouring to secure a free passage for the warm water from the antrum to the external auditory meatus through the incised or formerly perforated drumhead. The most graphic and minute details of thirty cases are now given,—twenty-three mastoid cases in which the operation was successfully performed, and seven where it was not required. Studying the cases reminds one of the records of cases in the admirable works of Graves, Chambers, and Spence.

Dr Clarence J. Blake also sends us a most interesting and minute description of a new aural building, with complete plans, recently erected in connexion with the Massachusetts Charitable Eye and Ear Infirmary. We strongly recommend this pamphlet to the doctors, architects, and inhabitants of Edinburgh and Scotland generally at this time.

Guide to the Administration of Anæsthetics. By HENRY DAVIS, M.R.C.S. Second Edition. London: H. K. Lewis: 1892.

THE author chiefly considers the *general* anæsthetics—nitrous oxide, chloroform, and ether, and the *local* anæsthetic cocaine. The chapter on nitrous oxide is well written, and impresses on the reader a wider value of the drug than is commonly given. The greater part of the book is, however, taken up with the consideration of ether and chloroform, and of these the author obviously believes ether to be preferable for routine use, referring throughout the text to chloroform as more dangerous, although to be preferred in a large number of cases. In our opinion the book is the work of a specialist who starts on a wrong basis, and who, so far as chloroform is concerned, fails to grasp the essentials in administration. On page 43 we find, "During the administration of chloroform it is necessary to watch the respiration and the eye, and to be fully acquainted with the condition of the pulse." From the elaboration of that paragraph which follows, it is apparently intended that these are to be taken as the guides to dangerous symptoms, and there is no mention of the important and easily observed guide, *the appearance of the face.* We cannot agree with several other dicta which the author lays down, and we think more might have been said of how to prevent dangerous symptoms, and how to treat them when they obtain. The descriptions of methods of artificial respiration are too slight for their proper appreciation, and Howard's method is incorrectly described, the author seemingly confusing it with a method introduced by Schüller. The chapter on Cocaine is much more satisfactory.

After a careful perusal of this work, we think it a most defective guide to the administration of anæsthetics, and not one to be placed in the hands of students.

An Introduction to Modern Therapeutics; being the Croonian Lectures on the Relationship between Chemical Structure and Physiological Action in Relation to the Prevention, Control, and Cure of Disease. By T. LAUDER BRUNTON, M.D., D.Sc., LL.D., F.R.C.P., F.R.S., Lecturer on Materia Medica and Therapeutics at St Bartholomew's Hospital, etc., etc. London and New York: Macmillan & Co.: 1892.

THIS book is a reprint of the Croonian Lectures, delivered at the Royal College of Physicians, London, in June 1889. Lectures I. and II. are on Prevention of Disease. Lectures III. and IV. on Control and Cure of Disease.

It is well that Dr Brunton has given in book form these valuable lectures, which are worthy of their distinguished author. The volume deserves a place in all medical libraries.

Watts' Dictionary of Chemistry. Revised and entirely re-written by H. FOSTER MORLEY, M.A., D.Sc., Fellow of University College, London, and Professor of Chemistry at Queen's College, London; and M. M. PATTISON MUIR, M.A., Fellow and Prælector in Chemistry of Gonville and Caius College, Cambridge. Vol. III. London: Longmans, Green, & Co.: 1892.

THIS volume extends from IN to PH. We have had occasion to express our opinion regarding the value of the two preceding volumes, and this third volume bears ample testimony to the ability of the distinguished authors, and maintains the high standard of the two previous volumes. The three volumes already published are invaluable as works of reference, and are deserving of a wide circulation.

The Complete Medical Pocket Formulary and Physician's Vade-Mecum. By J. C. Wilson, A.M., M.D. Philadelphia: J. B. Lippincott Co.: 1892.

This is largely an index of diseases, with remedies in the form of prescriptions, these prescriptions in many cases being taken from the works of distinguished physicians. It is not a book which is likely to have a wide circulation on this side of the Atlantic. No one will ever become a good prescriber by copying prescriptions out of a book.

Annales Provinciales de Chirurgie. A Monthly Journal of 64–80 pages, Illustrated. Dr Marcel Baudouin, Editor, Paris.

We have received the first number of this new Surgical Journal, which is to appear monthly in Paris. Founded by a number of young provincial surgeons, it has for its chief editor Dr Marcel Baudouin, the secretary of the editorial staff of *Progrès Médical.*

The first number is full of promise. Excellent original matter, chiefly on the operative procedures for the relief of intestinal and gastric cancer; it is admirably edited. Excellent paper and type, lavishly illustrated by woodcuts, photogravures, and coloured plates, it reflects great credit on its publishers; and the names of the able and zealous young hospital surgeons and teachers who have founded this magazine make it certain that it will deserve success, if talent and originality can command. We wish it every good fortune.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXI.—MEETING IX.

Wednesday, 4th May 1892.—Dr Clouston *in the Chair.*

I. Election of Member.

Dr G. Matheson Cullen, 48 Lauriston Place, was elected an Ordinary Member of the Society.

II. Exhibition of Patient.

Mr Caird showed a patient, aged 29, who was admitted to Hospital six days after he had sustained a simple transverse fracture of the olecranon by a fall from a height of 18 feet.

The patient's circumstances required that he should be able to return to his work as soon as possible, and he desired to have the fracture wired. It was therefore cut down upon, and the separated fragment was found to be split longitudinally. The portions were wired together and the wound closed. Patient left Hospital in a week, and on the fourteenth day after the operation he was able to execute a full day's work, to handle the saw and follow out his occupation, that of a joiner, with perfect use of the joint.

III. Original Communications.

1. *Dr John Macpherson* and *Mr David Wallace* read their paper on the SURGICAL TREATMENT OF GENERAL PARALYSIS OF THE INSANE, WITH FIVE ILLUSTRATIVE CASES.

Dr Ireland observed that these operations afforded another proof of the safety with which the vault of the skull could be opened under proper precautions. Formerly surgeons were very timid of trephining, and it was the localisation of function of certain areas in the brain which furnished the occasions for surgical interference. The best results were obtained where there was a clear indication of the site of the lesion, as in tumours and abscesses of the brain. In general paralysis they had a disease of the cortex, inflammatory, or at least having a hyperæmic character, which in the end spreads to the whole nervous system. Dr Macpherson, whose pathological paper might be viewed as a justification of the operation, said that the disease began in the frontal lobe, which might be. But from the symptoms it seemed to begin sometimes in one part of the cortex and sometimes in another, and the hemispheres were often unequally affected. Hence there was no clear indication for the surgeon where to open the skull and what he would find. What was proposed was to relieve two symptoms which were not the essential symptoms. To relieve the brain of the pressure of the arachnoid fluid it did not seem necessary to make so large an opening, and though surgeons in despair at the persistence of a hyperæmic condition sometimes tried the effect of a free incision, he doubted whether the brain tissue would stand such treatment. Nevertheless he thought that in so desperate a disease as general paralysis the interesting experiments detailed were quite justifiable. Dr Ireland thought that the operation of opening the cranium might be tried with good results in that rare disease, hypertrophy of the brain.

Mr Chiene said the surgical aspect was perfect and called for no remarks: he left it to the psychologists to discuss the advisability of the procedure.

Dr George M. Robertson congratulated the authors on their paper, and on the skilful surgical treatment of their cases. Excepting from an experimental point of view, he did not think the operation justified on the grounds mentioned in the paper. The operation was proposed to relieve the pressure on the surface of the brain caused by the cerebro-spinal fluid, and not above one or two ounces—the exact amount was not stated—had been thus removed. It was known from experiment and also clinical experience that the rate of secretion of this fluid was very rapid, hence the good done by this operation could only be very temporary. It was also known, from experiments by Duret and Adamkiewicz, that the rate of absorption was also extremely rapid, hence this operation was uncalled for. Moreover, if a momentary drainage were the only object, why make so large an opening? The fact is that the theory underlying the operation is wrong,—the cerebro-spinal fluid is a passive agent for regulating intracranial pressure, and if there is increased pressure it must be due to an increased amount of blood. This possibly exists in the early stage, and it could be relieved by a large removal of the skull-cap. In the later stages we have convincing proof that there is decreased pressure, and at this stage we have an increase of cerebro-spinal fluid of a compensatory nature. The most efficient way of removing this is to tap the spinal arachnoid, but he did not believe the true pathology of general paralysis justifies this operation.

Dr James Ritchie said that in chronic hydrocephalus the nerve elements were subjected to a considerable amount of pressure for a lengthened period, but yet the symptoms were widely different from those which were exhibited by a person suffering from general paralysis. He was therefore unable to accept the theory which ascribed the disease or its symptoms to increase of intracranial pressure. He thought that it could not be a primary nerve degeneration, that there must be some prior cause inducing congestion. If it were purely a nerve degeneration there would not be the periods of quiescence, with, in some cases, apparent recovery.

Dr James Middlemass questioned the existence of increased intracranial pressure in general paralysis, and quoted recent experiments of Adamkiewicz in this direction. Regarding the pathological appearances found in the cortex, he said nerve-cell degeneration was as prominent as purely inflammatory changes, and operative measures could not influence it.

Dr George Wilson suggested that operation was likely to benefit cases in which there were localized motor symptoms.

Dr Clouston warmly congratulated the writers of the paper on the care and thoroughness with which they had done their work. It had given him great pleasure to hear Dr Macpherson's masterly pathological descriptions of general paralysis. He justified any kind of experimental treatment in this hitherto hopeless disease. He believed that our physiological and pathological knowledge had been increased by the facts brought out in the paper. As regards the question of pressure, he believed that there was no evidence that the intracranial pressure is increased in general paralysis in any stage, except, perhaps, after congestive attacks from vaso-motor paralysis and dilatation. He believed that pressure would tend to cause drowsiness, stupidity, and lethargy, rather than maniacal excitement. All the appearances could be explained on the theory of the fluid being compensatory. In regard to the question whether the disease was essentially an inflammation or a nervous degeneration, he was strongly of opinion that it was a degeneration accompanied by certain inflammatory or proliferation products the result of vaso-motor irritation and partial paralysis. The course of the disease is that of a typical nerve degeneration originating in the highest mental and motor centres, and passing downwards till it reaches the furthest ganglia and the peripheral nerves, involving the cord, retina, and sympathetic ganglia. The occasional high temperature, which is seldom an inflammatory temperature, is explained by the maniacal conditions and by the congestive attacks. The headaches are no doubt caused by meningeal congestion. And more than one-third of the cases have no heightened temperature, or headaches, or maniacal excitement at all, but a simple progressive dissolution of mental and motor power. How can the universal vascular and lymphatic changes and degenerations all over the region of the two carotids, outside the cranium as well as inside, be explained on the intra-cranial inflammatory theory? The hæmatoma auris is most common in this disease, owing to such degeneration outside the skull, and pressure has nothing to do with that. The theory of vaso-motor changes explains all those phenomena. It is now well recognised that each cortical centre has its own vaso-motor and trophic centre contained within its own area, so that when a mental area or many such areas are affected, as in this disease, their vaso-motor centres are also affected. If the disease is inflammatory, or even essentially vascular or lymphatic in origin, how can the fact of uniform progression till death results in every case be explained? How is it that the ordinary fibrous and purulent products of inflammation never by any chance are seen in any one case? He had seen an ordinary meningitis superimposed on the general paralytic process, and the respective pathological changes of the two diseases were quite distinct. He did not agree with Lewis that vascular and lymphatic changes were seen before nerve-cell changes, and that they were found in a more advanced stage than the cell degenerations. Besides, he did not believe that by our present means of investigation we can as readily detect early nerve-cell changes as early vascular and lymphatic changes. Finally, the almost universal tissue and organ degenerations that are found in the end of the disease are explained more rationally on the theory of a nervous degeneration beginning in the highest nerve centres, and early involving most of the trophic centres. He regretted that the meeting had not this evening the benefit of the views of Dr Batty Tuke, who strongly upheld the intra-cranial pressure and inflammatory theories in this disease, on account of his being unavoidably absent in London on the service of the College of Physicians.

6. *Brigade-Surgeon Alexander* read his paper on THE RESTORATION OF THE APPARENTLY DROWNED, which appears at page 116 of this Journal.

Dr James Ritchie said that doubtless the Howard method of extending the head upon the neck was not only the best, but the only way of insuring a free opening for the passage of air during artificial respiration. He asked Brigade-Surgeon Alexander whether he had found it possible for a single individual to carry out the modification of the Hall and Sylvester methods which he recommended, at least for a length of time. By the Howard method it was quite possible for a single operator to continue the resuscitating process for a long period without fatigue.

Brigade-Surgeon Alexander, in reply, said that the main object he had in view was to call attention to the obviously erroneous teaching on the subject in our various text-books, manuals, and the instructions issued by the Royal Humane Society, and taught by the Ambulance Societies all over the country. The modification he proposed could not be carried out for any length of time by a single individual, but assistance was generally at hand in these cases.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LIII.—MEETING VIII.

Wednesday, 13*th July* 1892.—Dr M. T. RATTRAY *in the Chair*.

I. *Dr Haultain* showed a UTERUS removed by the Porro-Müller method of Cæsarean section. The patient from whom the specimen was obtained was a deformed dwarf with a pelvis contracted chiefly in the transverse diameters (details of which will be subsequently published). The operation was performed in a small cottage in the country, along with Dr R. Stirling, Perth, and the result fully justified its selection, as both mother and child were saved. It was of value in endorsing Dr Lawson Tait's assertion, that elaborate preparations and surroundings were unnecessary for its safe performance, and hence he thought the operation should be decided upon in many cases before undue delay had already so weakened the patient as seriously to impair the chances of her ultimate recovery.

II. *Dr J. W. Ballantyne* showed—(*a*.) PHOTOGRAPHS and a DRAWING of frozen sections of the EXOMPHALIC AND ANENCEPHALIC FŒTUS which Dr Underhill had exhibited at the last meeting of the Society. He had to thank Dr Underhill for permission to examine the specimen, and Dr Chas. E. Gray for the clinical notes of the case. The fœtus was born in the Maternity Hospital on May 10th. The membranes had been ruptured by mistake at 5 P.M. on May 9th, and a great quantity of liquor amnii had escaped; the patient was admitted to the Maternity at 6 P.M. on the same day. There were then no pains present, and the left hand and an elbow of the child were found presenting. At 11 A.M. on May 10th, no pains having occurred, Dr Underhill performed version and brought down a leg. Some pains came on, and at 12.30 the child was delivered with the help of some traction on the leg. The umbilical cord had been ruptured previous to delivery. The pregnancy had advanced as far as the seventh month, for the last menstrual flow had been in October 1891. During the pregnancy the abdominal distension had been unusually great, and the patient had suffered considerably from pain in the left side. No fœtal movements had been felt, and the woman had no idea that she was pregnant. It had been thought that she had an ovarian cyst. The patient did well till the morning of the third day of the puerperium, when the temperature rose suddenly to 103°·8 F. The uterus was washed out, and although nothing was brought away save fine granular debris, an appreciable difference in the temperature was produced. Quinine and antipyrin were also given, and on the evening of the fourth day the temperature was normal. An uninterrupted recovery was thereafter made. The patient, 41 years old, had had five previous pregnancies. None of these had terminated in abortions; all had gone to the full term. The first child was delivered instrumentally. The four first children were born alive and are still living (youngest is now seven years old), but the fifth infant was born dead. The mother could give no information as to the condition of this last-named child, nor the date of its delivery. The general health of the woman had always been good, but since her first pregnancy she had not felt so strong as before, and about a year ago she had an attack of muscular rheumatism. Her menstrual flow had been regular, lasting for four days. The father was a well-made, healthy-looking man. A vertical mesial section showed the peculiarities of the anatomy of this fœtus very well. The head was typically anencephalic. The bones of the basis cranii were directed downwards as well as backwards; there was no cartilage between pre- and post-sphenoid, although a plate of it was found between sphenoid and basi-occiput; and on the upper and posterior surface of the basis cranii lay a sac containing blood-clot and fibres, and continuous with the extensive spina bifida. The skin in the neighbourhood of the ears and along the margins of the furrow caused by the spina bifida bore numerous long black hairs. There was great extension of the head, the face looking directly upwards. The buccal cavity was directed backwards and markedly downwards, and opened into a large quadrilateral pharyngeal space. Where the neck groove ought to have existed was an enormous deposit of fat lying in front of the sternum and larynx. There was no ossification of the sternum. The anterior part of the chest was very narrow from side to side, and contained only the heart and thymus. The lungs lay quite posteriorly. The spinal column, which consisted of only thirty vertebral bodies, was markedly deformed. Besides the spina bifida it showed a great degree of cervical lordosis, an equally marked cyphosis in the upper dorsal region, and a lordosis of the lower dorsal and lumbar regions. At the sharp angles formed by the curves, one or more vertebral bodies were small and wedge-shaped; these were the 5th, 8th, 12th, and 13th bodies. The total length of the fœtus was 31 cms., that of the head and trunk 18 cms., and that of the spine following the curves was 15 cms. There was also a large exomphalic protrusion, in which lay the whole of the liver and some of the intestinal coils, along with a portion of the stomach. The hernial sac measured 16 cms. in circumference, and its neck had a measurement of 13 cms. The left kidney lay close to the middle line in front of the 16th, 17th, 18th, 19th, and 20th vertebræ, whilst its supra-renal capsule lay in front of it at the level of the 17th and 18th vertebræ. The right kidney, on the other hand, lay close up under the right half of the diaphragm at the level of the same vertebræ as the left, and on the corresponding lung the liver impression was replaced by a renal one. The spleen was displaced downwards and forwards, and lay opposite to the 19th, 20th, and 21st vertebræ. The uterus, bladder, and rectum were normal in position.

(*b.*) A KNOTTED UMBILICAL CORD. The knot was a simple one, and was situated at a distance of 20 cms. from the umbilicus of the infant. The cord was 63 cms. (about 25 inches) in length, 3 cms. in circumference, and had a slightly eccentric insertion into the placenta. It showed a normal degree of twisting. The placenta had a circumference of 48 cms., a maximum diameter of 19 cms., and a minimum of 12 cms. The knot was not drawn tight, and the child (a male) was born alive, and did not even require to have respiration stimulated. The umbilical vessels at the knot were quite patent. It thus contrasted markedly with another case which he had seen, in which the knot was a tight one, and the child had been dead in utero for some time; in that specimen mercury could be forced through the arteries of the cord but not through the vein. In the specimen shown the cord had in addition to the knot a convolution once round the shoulders. The labour was a very tedious one. The mother was an elderly primipara, had a sub-peritoneal fibroid, premature rupture of the membranes, and uterine inertia. Forceps were needed to deliver; there was a small perineal tear which required two stitches, and there was some bleeding in the third stage. The placenta and membranes were fairly normal in appearance. Dr Ballantyne showed a drawing of the knot slightly opened out, and compared it with drawings of other more complicated knots which had been figured by other observers. With regard to the causation of the knot, it was worthy of note that during pregnancy the fœtal movements had been at times very violent. There was no hydramnios.

(*c.*) A specimen of VELAMENTOUS INSERTION OF THE UMBILICAL CORD, which Mr G. B. Thompson, one of the students of the Medical Missionary Society, had kindly handed to him for examination. The clinical history was that the mother, a vii.-para, 34 years of age, had last menstruated on 16th September 1891, had twice had threatenings of abortion, and had been delivered on July 4th, 1892. She had had six previous children, one of whom was dead. The labour in this (her seventh) pregnancy was rapid, the child presented by the vertex, and was born alive, and is still alive and shows no signs of disease. There was no hydramnios. The father has alcoholic habits, was treated two years ago for "sore throat," and had recently an attack of double orchitis which yielded to antisyphilitic treatment. The length of the cord from the umbilicus to the point where the vessels reached the membranes was 44 cms., and to the placental mass it was 49 cms. The vessels of the cord broke up in the membranes into several large branches, some of which passed directly to the placenta, whilst others pursued a circuitous route in the membranes. The tear in the membranes had very nearly torn through one of these trunks. The outer surface of the chorion showed an unusually thick layer of decidual remains—the result in all probability of a decidual endometritis. Possibly the continued vascularity of the decidua outside the area of the serotina had something to do with the production of the velamentous insertion. The cord measured from 5·3 to 4·5 cms. in circumference, and showed very little twisting. The circumference of the placenta measured 48 cms., whilst its maximum diameter was 17 cms., and its minimum 15 cms. There were no hæmorrhages in the placental substance, but there was a small area (8 cms. by 5 cms.) of paler colour and firmer consistence than the rest.

III. *Dr Milne Murray* showed—(*a.*) A HYDROCEPHALIC FŒTUS. The case occurred in the out-practice of the Royal Maternity Hospital. The patient had had eight normal children. This, her ninth labour, began at term, and after a short first stage the waters broke at 1 P.M. and the breech came down. The resident having been summoned, found the legs born, and without difficulty the arms were brought down. His efforts to deliver the head being futile, I was sent for about two o'clock. The first impression, on placing the hand on the abdomen, was that there was a second fœtus, so large and resistent did the uterus feel. On vaginal examination, however, the lower parts of the head and face could be felt in the cavity, while the enormous vault could be felt much beyond the brim. The cord having long ceased to pulsate, there was no question as to the propriety of perforating. This was done on the left of the occipital eminence, and a great gush of fluid followed. Sixty ounces of a pale straw-coloured liquid were collected, after which the head escaped easily. The fœtus was a perfectly nourished specimen, weighing 9½ lbs.

(*b.*) For *Dr Underhill*—A FŒTUS delivered by turning in a flat pelvis, showing in a very typical manner the characteristic grooving of the parietal by the promontory. The patient was a secundipara, who two years ago had been delivered with great difficulty. She was then advised, in the event of another pregnancy occurring, to come in and have labour induced at the seventh or eighth month. She seems to have mistaken her time, because on inducing labour at what was supposed to be seven and a half months, it was found her child was quite mature. Turning was easily accomplished, but the head stuck, and the child died before delivery could be accomplished.

IV. *Drs Berry Hart* and *Lovell Gulland* gave their DEMONSTRATION ON THE SECTIONAL ANATOMY OF ADVANCED PREGNANCY IN MACACUS RHESUS.

Dr J. W. Ballantyne thought the thanks of the Society were due to Drs Hart and Gulland for their interesting demonstration. The presentation and attitude of the fœtal monkey, the bilobed character of the placenta and its insertion on opposite walls of the uterus, and the form of the uterine interior, were all points worthy of note. It was further interesting to learn from Dr Gulland that the amnion consisted of a single layer of cells, as in the human gravid uterus. He hoped the authors would still further investigate by the sectional method the subject of the pregnant state in the anthropoid apes.

V. *Dr Milne Murray* read his NOTE OF A CASE BEARING ON A RELATION BETWEEN IMPREGNATION AND MENSTRUATION, which will appear in a future number of this Journal.

Dr Haultain thanked Dr Murray for bringing before the Society the account of such an interesting and instructive case. It certainly showed, as near as it possibly could be shown, the probable period of human gestation to be 272 days, because it must be accepted that the ovum which was impregnated was that which was shed at or about the menstrual period following the connexion. Further, it was an illustration strongly favouring the seat of impregnation being outside the cavity of the uterus, probably in the tube, as it is almost inconceivable for the spermatozoa to battle with the menstrual flow for four days waiting for the ovum to turn up to become impregnated. In support of the theory that the tube is the probable seat of impregnation, two cases of unruptured tubal gestation which he (Dr Haultain) had examined, showed the proximal end of the tube to be lined with normal ciliated epithelium, a condition which, according to Lawson Tait, would be an effectual barrier to the passage of the spermatozoa. Thirdly, assuming the ovum to have been impregnated in the tube, and probably at its outer third (the usually accepted situation), the case certainly showed that the passage of spermatozoa through the female genital tract was very rapid—an interval of but two hours having allowed the sperms to travel a distance of 3 inches. Henle's assertion therefore, that they travel at the rate of an inch in 7½ minutes could not be very far wide of the mark. From these considerations and others, the case was one of much scientific interest, and he must say that he was sure the thanks of the Society would be accorded to Dr Murray for bringing it before them.

VI. THE ROYAL MATERNITY HOSPITAL REPORT for Quarter ending July 31st, 1891, by *Dr H. G. Langwill*, was held as read.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

ALEURONAT AS A FOOD IN DIABETES.—Ebstein (*Deut. Med. Woch.*, May 12, 1892) says that an exclusive animal diet of meat and fat is only possible for a short time, and then bread in as small quantity as possible has to be allowed in addition. The bread recommended for diabetes, whether made from animal or vegetable albumen, has hitherto been found an unsatisfactory substitute for ordinary bread. Even gluten bread has gradually come to be less used, especially in Germany, and a small quantity of ordinary bread, up to 100 gram., is allowed in preference. Hundhausen was the first to introduce the vegetable albumen known as aleuronat, and prepared from wheat. It is a dry powder, yellow in colour, and without taste or smell. It never contains less than 80 per cent. of nitrogenous matters, nor more than 7 per cent. of carbo-hydrates. It may be used in the place of flour for making soups, sauces, etc. Bread made with aleuronat has been recommended, but the quantity of aleuronat present was at best but moderate in amount. The author has, however, succeeded in making a very satisfactory bread with it, which contains in the dry substance 66 per cent. of nitrogenous matters. Thus a diabetic, in taking ½ lb. of aleuronat bread containing in the dry substance even 50 per cent. of nitrogenous matters, gets 80 gram. of vegetable albumen, and only 72 gram. of carbo-hydrates. Thus he can obtain a comparatively large quantity of the needful albumen in the same way as individuals in health. The author says that he has found aleuronat very useful in actual practice.—*British Medical Journal*, 11th June 1892.

INVESTIGATION WITH SALOPHEN—A NEW SALICYLIC ACID DERIVATIVE.—The fact that salol is poisonous has led to many experiments to try to find a substitute possessing all the good qualities, and yet itself harmless. Such a drug Dr W. Siebel believes has been found in salophen. It appears in small white crystal lamellæ, which are nearly insoluble in water. It is perfectly odourless and tasteless, is easily soluble in alkalies, alcohol, and ether, and melts at 368° to 370°. Dr Siebel made various experiments upon dogs and rabbits with it, and he believes that we possess in salophen a remedy that has all the favourable qualities of salol, and many advantages over it. It is absolutely odourless and tasteless, and considerably less poisonous than salol. It is hardly possible that a too energetic division or defective excretion might cause a salicylic acid intoxication. A dose of 7·4 grammes per kilogramme of body-weight proved fatal in rabbits; 5·3 grammes per kilogramme produced no symptoms of poisoning. We need have no fear as to the other compounds—acetylparamido-phenol. Salophen has already been tried in a hospital by Dr Guttmann. He reports favourable results, and no appearance of bad results (*Therapeutische Monatshefte*, January 1892).—*Therapeutic Gazette*, May 16, 1892.

CALCIUM SULPHIDE IN TONSILLITIS.—E. P. Norbury (*Therap. Gaz.*, May 1892) has been very pleased with the effects of small doses of calcium sulphide in acute parenchymatous inflammation of the tonsils. These cases, especially if the subject be strumous, very generally tend to rapid suppuration. He has found that small doses ($\frac{1}{8}$ to $\frac{1}{2}$ gr.) of the sulphide, frequently repeated, are most valuable, both in preventing this suppuration, or in hastening convalescence when the mischief is already advanced. Febrile symptoms and pain are both greatly modified under its influence. In abscess of the mouth and throat Norbury prefers to apply a solution of hydrogen peroxide to which has been added a little oil of cassia, which he finds a thorough and most efficient antiseptic.—*British Medical Journal*, 16th July 1892.

THE TREATMENT OF TUBERCULOSIS.—Flick (*Med. News*, March 12) publishes a series of cases of tuberculosis treated by inunctions of iodoform in oil. According to his experience, iodoform will cure tuberculosis in the first stage, and it acts better when administered by inunction than when given by the mouth.—*British Medical Journal*, 16th July 1892.

MENTHOL IN FURUNCLE AND SUPPURATION OF THE EAR.—In the *Monatschrift für Ohrenheilkunde* for March, Dr Cholewa of Berlin gives his enlarged experience with this remedy, and renews his commendation of it. In accord with Brouner and others, he has found that it generally cuts short any commencing furuncles, and if continued for a week, even when the disease seemed checked earlier, that it was not followed by relapses. The diffused inflammations of the auditory canal, whether secondary to tympanic suppuration or not, were generally controlled, and the inflammatory narrowing of the canal relieved promptly by its employment in oily solution of ten to fifteen per cent., and serious cases of suppuration with mastoid involvement, that threatened to require operation, improved beyond expectation, and proved amenable to routine measures. Laboratory tests showed it to have powerful inhibitory or germicidal effect upon surface cultures of staphylococcus and streptococcus, and it has been clinically proved very destructive to the bacilli of diphtheria.—*Therapeutic Gazette*, June 1892.

THE USE OF SOLANINE IN GASTRIC DISORDERS.—Desnos believes that solanine gives important results in the treatment of painful diseases of the stomach, which are equal or superior to those obtained from cocaine, chloroform-water, or the bromides of strontium or of calcium. The price of solanine is practically the only objection to its employment, but he believes, if its use is more general, that this cost will be very much reduced. He has used the drug in a large number of cases, such as gastralgia, dyspepsia with painful manifestations; alcoholic gastritis, with and without dilatation of the stomach. In a case of gastric ulcer with hæmatemesis, and in one with cancer of the pylorus with vomiting, great relief was rapidly obtained through the use of solanine. Desnos prescribes solanine in the form of a pill, as hypodermic injections are too painful. The dose which he administers is ¾ grain. It will be remembered that solanine is the poisonous principle derived from the sprouts of the ordinary potato. He gives ¾ grain half an hour before a meal if the dyspepsia is exceedingly severe. In any case it is an advantage to prescribe the solanine in a mucilage. The maximum dose to be employed in one day should not exceed two grains (*Journal de Médecine de Paris*).—*Therapeutic Gazette*, June 1892.

THE ACTION OF NAPHTHOL AS AN ANTISEPTIC.—A series of experiments has been instituted by Stackler and Dubief (*Bull. Gén. de Thérap.*, March 30, 1892) regarding the antiseptic powers of pure naphthol. The authors prepared a *cold* solution of the strength of 5 per 100, and one at the temperature of 36° C. This solution was then applied in the proportions of 1, 2, and 3 cubic centimetres respectively, to cultures containing the following microbes: Asiatic cholera, typhoid fever, bacillus pyocyaneus, staphylococcus aureus, carbuncle bacterium, herpes tonsurans, and the penicilium glaucum. Under the action of one cubic centimetre of the *cold* solution the cultures were unaffected, under that of 2 cubic centimetres the cultures of Asiatic cholera, typhoid fever, and herpes tonsurans were retarded; under the action of 3 cubic centimetres the cultures of typhoid fever, staphylococcus aureus, bacillus of carbuncle, and the bacillus pyocyaneus were retarded, while those of Asiatic cholera and herpes tonsurans were *arrested*. With the solution at 30° C. the results were more decided; 1 cubic centimetre of this was sufficient to retard all the cultures, except that of the bacillus pyocyaneus; 2 cubic centimetres produced an arrest of *all* the cultures.—*Therapeutic Gazette*, June 1892.

The Antiseptic Treatment of Diphtheria by Antipyrin.—M. Vianna, Bahia (Brazil).—In investigations undertaken in the laboratory of M. Strauss, I have proved that antipyrin exerts a marked bactericidal power upon Lœffler's bacillus, and that it destroys the toxic properties of the secretions of that microbe. In the first series of experiments I found that in the proportion of 2½ per cent. antipyrin prevents the development of the bacillus of diphtheria in the various culture media. More than this, the addition of antipyrin to the tubes containing Lœffler's bacilli in full growth killed them in less than 48 hours. The same result is attained in 24 hours when the proportion of antipyrin is raised to 5 per cent. If the same proportions of antipyrin as those given above are added to the bouillon filtered from the bacillus (*i.e.* containing the toxines elaborated by it), it may be proved that the poisonous secretions of the micro-organisms lose in part their toxic properties. For instance, the guinea pigs to whom injections of filtered bouillon, but containing 4 to 8 per cent. of antipyrin, were given died only after a number of days, varying from 5 to 24, whilst others, to whom the same bouillon without any addition had been administered, all died in less than 3 days. Antipyrin then exerts an antidotal effect upon the diphtheritic poison. As a matter of fact it does not completely destroy this poison, but modifies its toxic properties in a remarkable manner. These facts seem to us to be the more interesting from a practical point of view, since antipyrin, unlike many other antiseptics, can be administered in large doses, either locally per os, or by subcutaneous injections. The therapeutical employment of antipyrin against diphtheria is therefore indicated in clinical practice, and I do not doubt, after the observations I have made in the laboratory, that it will prove of great service.—*Le Bulletin Médical*, 30th March 1892.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. Allan Jamieson, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

The Pigmentation of the Skin.—In the course of his remarks in a letter from Honolulu, Dr Lutz makes some interesting observations on this point. Speaking of tinea versicolor, he says that in the case of the Japanese and other darker races, this disease produces white, or, when the spore formation is abundant, grayish patches. These continue for months during treatment, even when microscopic examination shows that the parasite has disappeared. It is very important to be aware of this, since the presence of white macules on the skin is not unimportant in leprous districts. If portions of skin are cut out, it is found that the pigment is not absent, and similar observations can be sometimes made on pale leprous eruptions. If a portion of the skin of the trunk in one of the coloured races be covered for a considerable time with some substance impermeable to light, such as thick sticking plaster, it will be found that this spot is less deeply pigmented, and only slowly recovers its tint if the plaster is laid aside. From this it can be inferred that the pigment of the skin can exist in an uncoloured and in a coloured modification. The latter is usually by irradiation with actinic rays evolved from the former, and completes this process but slowly on those parts which are most covered. The fungus masses in tinea versicolor act partly by reflection, partly filter the light, and restrain pigmentation. This is not entirely equalized even half a year after the fungus has disappeared. In this we have the explanation of another fact. Every one who has delivered a coloured woman knows that her children are born with fair skins. This holds not only for the negro, but also for the Hawaiians. Still on individual points, as on the scrotum, there may be distinct pigmentation; on other parts the dusky tint only slowly develops. Thus it is the confinement in the dark chamber of the uterus which renders the colour invisible. The pigment is easily seen in excised skin which has been freely exposed to the light and other influences.—*Monatshefte für prakt. Dermatologie*, 15th February 1892.

THE DISTRIBUTION OF THE NORMAL FATTY SECRETIONS ON THE SURFACE OF THE SKIN.—Dr Arnozan has made an interesting contribution to our knowledge on this point. Unna has stated reasons why we should regard the sweat glands as taking an important, if not a predominant part in the elaboration of the fatty substances shed on the surface of the skin by the cutaneous secretions. But the physiology even of the fatty secretions has been neglected; perhaps the best account of the multiple origin of the nutrification of the skin will be found in the Commentary by Besnier and Doyon on Kaposi's lectures. They hold that the epithelial cells themselves, the sweat, and the sebaceous follicles, all contribute—none singly is sufficient. It is from their harmonious combination that the *normal* condition of the integument is brought about. We must find some means to discover the smallest particles of fatty matter on the surface. Unna found that the secretion of the palms imparted an oily stain to paper. Arnozan pressed firmly on certain points of the skin small squares of white blotting paper, and when these were subsequently exposed for a considerable time to the vapour of osmic acid, there were indisputable traces that the paper had collected some particles of fat, but by an ingenious procedure he was able to determine this much more precisely. If minute pieces of camphor are thrown into a glass about three inches in diameter, perfectly clean and filled with distilled water, they are agitated by violent and rapid vibratory movements, which are at once arrested if a needle be plunged into the water, after having been rubbed against the scalp hairs. This phenomenon has been made use of by Arnozan. He found that glycerine and vaseline did not check the movements; alcohol and ether disturbed, but did not stop the rotation; saliva occasioned no reaction; oil caused cessation of movements most rapidly, next to it were butter and grease if warmed, less so if cold; emulsions of soap acted as quickly as fat. The results obtained from observations on the human body were as follows:—The different parts of the body are very unequally lubricated by the normal fatty secretion. All the face and scalp, the neck behind, the back, the presternal region, and the shoulders and pubis, are constantly covered with an oily layer, visible or not, but always appreciable to the camphor test. Yet these regions do not present it in the same abundance. Thus, on the nose, ears, and chin the fat is always relatively considerable; on the forehead, cheeks, back, and pubis less, and still less on the front of the neck, the presternal region, and the shoulders. The regions unnamed are not provided with an appreciable fatty secretion; yet the transition from the oily to the non-oily regions is not an abrupt one. As a general fact, the palms seem absolutely free from a fatty coating. The axillæ were variable; the results were sometimes positive, sometimes negative. In children nine months old no arrest of the movements of the camphor was occasioned; the procedure did not prove the presence of any fat in any situation. Between the age of six and ten years, the fatty material could be found round the nose, on the chin, cheeks, and scalp. When menstruation was established in the female, when the beard grew in man, the secretion was developed in all the situations named above. As age advanced the regions having an oily coating became drier and restricted in area, remaining finally in the very old limited to the nose and chin. In endeavouring to determine the source of this secretion it is noticeable that the regions which possess a fatty coating are precisely those where the sebaceous glands predominate, and that this secretion is absent where these do not exist, or are few in number.—*Annales de dermatologie et de syphiligraphie*, Janvier 1892.

EPIDEMIC EXFOLIATIVE DERMATITIS.—Under this name Dr Savile gives a full account of a peculiar disease which occurred nearly exclusively in the western division of the metropolis, in the summer and autumn of 1891; 165 cases came under his own care. He defines the complaint as a contagious malady, in which the main lesion is a dermatitis, sometimes attended by the formation of vesicles, always resulting in the desquamation of the cuticle, usually accompanied by a certain amount of constitutional disturbance, and running a more or less definite course of seven or eight weeks. The eruption frequently commenced as a discrete papular rash, sometimes rather erythemato-papular, or the erythema predominated. This was followed by a stage of exudation or desquamation. There were two types: in one, the moist, the papules were followed by vesicles and copious exudation; in the other, the dry, there was either no, or a very transient exudation stage, the skin remaining dry throughout. The former resembled acute eczema, the latter pityriasis rubra. The former embraced two-thirds of the cases. The skin remained in this crimson inflamed condition for several days or several weeks, continually shedding its epidermis, not once or twice only, but many times. The size of the flakes varied from an impalpable powder to the entire cast of the hand. In no case was this exfoliation absent. By degrees the inflammation subsided, leaving the skin still thickened, indurated, but with a polished brown appearance. A purpuric condition was seen in many cases, especially in the later stages and in the aged. As regarded the mode of progression of the disease, the spread took place in most instances from neighbouring parts, or from such which might have been brought into contact by movements of bedclothes. It started most frequently in the upper extremities and face, extending from above downwards. The hair fell off in the later stages. Of constitutional symptoms, anorexia and prostration were the most constant. The most typical chart of temperature showed a long course of intermitting apyrexia, with here and there a rise to 100° or 102°, lasting a day or two, due in some instances to boils. There was some itching, irritation, and burning pain. The skin was sore and tender after separation of the epidermis, while in severe cases (half the number) a sour odour was exhaled. Twenty-eight died, but in seven of these death was principally due to some other disease. In treatment a 1 per cent. lotion of creolin seemed efficacious in some cases, and was at least soothing. As to the nature of the disease, it seems distinct from ordinary eczema, but Mr Morris thinks it may have been a contagious form, and Mr Hutchinson that it was an erysipelatous eczema. A peculiar diplococcus was found in the scales by Dr Savile, and in the skin, blood, and exudations by Dr Russell. While resembling staphylococcus pyogenes albus, it presents features quite distinct from it. This, from the constancy of its presence, could scarcely be considered accidental, yet inoculation only once produced a specific effect on animals. The numerous illustrations convey an excellent idea of the features of this remarkable disease.—*British Journal of Dermatology*, February, March, April 1892.

THE TREATMENT OF LICHEN PLANUS.—Dr L. D. Bulkley recommends an empiric prescription suggested by the elder Dr Boeck, which consists in the administration of from 10 to 20 grains of chlorate of potash dissolved in a good deal of water, taken directly after each meal, followed in half an hour by 20 drops of dilute nitric acid, also well diluted. This has been supposed to act as an oxidising agent, promoting the assimilation of food, and the disintegration of effete substances. Arsenic he has found of little use; indeed, in the more acute stages it seems to aggravate the affection, and the same result has appeared to follow the ingestion of sweets in excess. Locally, the well-known calamine and zinc lotion, with an extra proportion of carbolic acid, gives much relief, and seems to check the development of the eruption. Ichthyol, in a two to four per cent. watery solution, is also grateful and beneficial. When the skin becomes at all dry a one or two per cent. carbolized vaseline freely applied is the best application. In chronic conditions, or when the eruption remains quite localized, the treatment suggested by Unna will sometimes seem to produce a remarkable result. This is a diachylon ointment containing even as high as four per cent. of carbolic acid, with perchloride of mercury added in slowly increasing quantity, beginning with two grains to the ounce. In some cases he has seen the amount increased gradually, until even 10 to 15 grains in the ounce was well borne. This is of course exceptional, and this plan of treatment should be used with caution, although, when intelligently carried out, it certainly removes the chronic obstinate lesions more certainly than almost any other. Alkaline baths are sometimes serviceable, but must not be too frequently indulged in. Bulkley, indeed, has had it strongly impressed on him that too great bathing of the skin, especially cold bathing, has, particularly in cases in private practice, been often one of the chief features of causation of the eruption. Curiously enough, he states that cold, daily general ablutions are in America much more frequently practised by females than by males, and that in most of the cases in females in private practice, certainly in those who had the eruption severely, there had been very great abuse of water on the skin.—*Journal of the American Medical Association,* November 7th, 1891.

OCCASIONAL PERISCOPE OF DISEASES OF CHILDREN.

By Charles E. Underhill, M.B., F.R.C.P. Ed.

Umbilical Fæcal Fistula cured by Radical Operation.—The child was three months old. The fistula was noticed soon after the cord separated. In spite of the constant escape of fæces it throve fairly well. The operation consisted in cutting through the protruding mass and extending the incision upwards, removing the diverticulum from the small intestine, which was the seat of the disease, and sewing up the bowel with a double row of continuous silk sutures. Rapid and complete recovery followed.—F. J. Shepherd, M.D., Montreal., *Arch. of Pædiatrics,* Jan. 1892.

Scorbutus in Infants—American Cases.—In the same number of the *Archives* is an interesting paper on this disease, which seems very rare in the States and on the Continent of Europe, but rather commoner in London. Eleven cases are given, which mostly present the typical features of swelling and bleeding of the gums, with pain, swelling, and stiffening of the lower extremities, particularly along the thighs. Some also had purpuric spots in various parts. Records of three autopsies are given, presenting the usual features. In most of the cases the cause was traced to imperfect nutrition due to feeding with various infants' foods. Those that recovered were rapidly cured by an antiscorbutic regimen, viz., fresh milk, meat juice, and oranges. The first case is specially interesting, as it occurred in a child of wealthy parents, with the best hygienic general surroundings.—W. P. Northrup, M.D.

ON THE ASSOCIATION OF CONGENITAL WRY-NECK WITH MARKED FACIAL ASYMMETRY.—This condition appears to have been first noticed by Wilkes in his work on *Nervous Diseases* in 1878, and the subsequent references to it in professional literature are scanty. Osler in a short paper gives references, and reports a cure observed by himself. It is curious that in all the cases noticed the wry-neck has been on the right side. The appearances differ from those presented by hemiatrophy proper, and it rather seems as if the face on the affected side had not developed proportionately, so that it is an arrest of growth rather than an actual atrophy. No perfectly satisfactory explanation of this asymmetry has yet been put forward; but Golding-Bird is probably right in thinking that the torticollis and the arrested development have a common central origin, which he believes to be a primary polio-encephalitis. In a case I have at present under observation, the wry-neck was associated with a congenital hæmatoma of the sterno-mastoid.—Osler, *Arch. of Pædiatrics*, Feb. 1892.

PHOSPHORUS IN RICKETS.—Since Kassowitz, in 1884, first recommended strongly the use of phosphorus in rickets, this treatment has been the battle-ground of conflicting opinions. But now the " big battalions " are all on the side of the use of phosphorus. The latest author, Dr J. G. Master of Kiew, very strongly supports this side. From a large experience of its use in the policlinic of Troitsky, he affirms that in all cases, from the slightest manifestations to the severest forms of rickets, he has always found it of the highest value. The teeth came more regularly, the softened bones of craniotabes harden, the pigeon breast expands; and more particularly the rachitic affections of the central nervous system, viz., convulsions, laryngismus, sweatings about the head, and night terrors, disappear under its use. They got no such results from any other means, whether dietetic, hygienic, or medicinal. But in order to get its full value, the stomach and bowels must first be regulated, and diet and hygiene attended to.—*Jahr. f. Kinderheilk.*, May 6, 1892.

ON HYPERPLASIA OF THE THYMUS GLAND, AND THE DANGER TO LIFE CAUSED BY IT.—Another much debated subject is the question whether an enlarged thymus ever endangers life. In the same number of this journal Prof. Pott of Halle has a valuable paper on this subject. He refers especially to spasm of the glottis. Out of

176 cases he has observed 18 proved fatal. Four of those deaths occurred in his presence while he was examining the infants, whose ages varied from six to sixteen months. He gives a most graphic description of the course of events from the sudden onset of the spasm to the fatal issue—from one to two minutes. Persistent artificial respiration, and in two cases instant tracheotomy, were alike of no avail. Sectio showed, in the six of his cases in which it was made, an enlargement of the thymus, sometimes to a great extent. In two of the cases this gland overlapped the upper part of the heart and was adherent to the pericardium. He suggests that the deaths were not due to pure asphyxia, but either to pressure on the vagi or recurrent nerves, or possibly to pressure on the pulmonary artery. He is led to this view partly by some of the details of the post-mortem appearances, which were not those of pure asphyxia, and partly by the extreme suddenness of the fatal issue, and to the instant failure of the heart's action. He therefore concludes with the following thesis:—"An hyperplasic thymus gland has an influence, gradual as well as sudden, on the respiration and circulation, and may even lead, at all events indirectly, in a child in apparently perfect health, to sudden death."—Pott, *loc. cit.*, 1892.

CASE OF MELŒNA NEONATORUM, WITH REMARKS ON THE HÆMORRHAGIC DIATHESIS OF NEW-BORN CHILDREN.—A weakly, premature, syphilitic child, a fortnight old, was brought to the hospital with icterus. The following day petechiæ appeared under the skin, followed by bleeding from mouth and anus, rapid collapse, and death. Sectio showed some blood in the colon and slight swelling of the spleen; no other lesion. Microscopically there was found diffuse interstitial hepatitis with parenchymatous degeneration of liver and kidneys. From the blood and organs was obtained in large quantities a bacillus identical with the "bacillus pyocyaneus *β*." Isolated colonies of the same organism were found in sections of the spleen and liver. In another similar case streptococcus pyogenes was found. The author concludes that there must be some special connexion between bacterial invasion and the hæmorrhagic diathesis, especially in the bleedings in the intestinal tract. He only connects these bleedings with the syphilitic taint so far as it predisposes to septic infection.—H. Neumann, *Arch. f. Kinderheilk.*, Bd. xii., H. 1 and 2, 1890.

STUDY ON TUBERCULOSIS OF THE TESTICLE IN CHILDREN.—This disease appears to be not so uncommon as was formerly supposed; at least the authors of this paper have come across nine cases in fifteen months. Tuberculosis of the testicle begins in the first months of life, and may even be congenital. The left testicle is more frequently affected than the right. The disease may run an acute or a chronic course. In four of the cases it was apparently primary. In the cases observed there was no tubercular affection of the rest of the sexual organs. Only twice was the spermatic cord affected. The tunica vaginalis is more frequently, and the epididymis less frequently diseased than in adults. In the interior of the testicle is found a cheesy mass, surrounded by firm fibrous tissue. Sometimes the testicle is much enlarged and hardened, and resembles sarcoma. The microscope shows that the tubercular process makes its way along the bloodvessels of the interstitial connective tissue. The treatment is that of tuberculosis in general.—Hutinel and Deschamps, *Arch. Gén. de Méd.*, March and April 1891.

ON THE QUESTION OF ANTIPYRESIS IN THE ACUTE INFECTIOUS DISEASES OF CHILDHOOD.—Kissel treated fifty-five cases of typhoid in children of ages from three to thirteen without any antipyretics whatever, and with only one death, which was from perforation of the appendix. He states the following propositions:—1. The severity of the disease is not proportional to the height of the fever. 2. It may be assumed that the severity of the disease depends on the effects which the poison produces on the tissue cells. 3. It is possible that the use of antipyretics in certain cases may do absolute harm. 4. He has never seen any indication for lowering the temperature. 5. Forced feeding is, in some infectious diseases, quite harmless. 6. As a general rule, cases where the fever runs high have a favourable course, and the author believes that the higher temperatures have a favourable effect. 7. He believes that most of the observations on the means of reducing temperature are of no scientific value. 8. A trustworthy therapeusis of acute infectious diseases is a thing of the future.—Abstracted in *Jahr. f. Kind.*, Oct. 1891, p. 193.

SURGICAL PERISCOPE.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

PARTIAL RESECTION OF THE URETHRA.—Professor Guyon prefers this procedure to resection of a portion of the urethra in its total circumference. He bases his preference both on the anatomical fact, that while the roof of the canal may be involved in morbid conditions due to gonorrhœal inflammation or to traumatism, yet it is in the floor that these severe lesions are principally found, which by their occurrence justify resection of the urethra; and on the further physiological fact, that when the canal is completely divided the separation between the severed ends is greatly increased by the elasticity and consequent retraction of the tissues, while, if the continuity be not completely broken, this retraction is an aid towards the success of the operation, increasing largely the diameter at the point of resection. The superior wall of the canal being left, excessive separation of the lips of the urethral wound does not occur, yet its degree may prove such as to render subsequent suture difficult, especially seeing that the ends cannot be approximated after liberation by dissection, as in the total resection; two of M.

Guyon's observations show, however, that union of the urethral wound by first intention may be obtained after partial resection. To secure this immediate union, M. Guyon does not think it to be necessary that accurate apposition of the urethral wound is achieved; he does not hesitate to repair the breaches in the urethra with perineal soft tissue, and, indeed, much prefers this to doubtfully healthy or widely separated urethral tissues, with a view to obtaining a large and dilatable canal in the future. At the same time he would, where practicable, suture the urethra. The stitches placed in the urethra should be transverse on one plane, and should not include mucous membrane; the perineal stitches run longitudinally and in three tiers. The method M. Guyon regards as more particularly useful in traumatic stricture, in which ordinary means of treatment give the least satisfactory results. Six cases are cited in illustration of the paper.—*Ann. des Mal. Génito-Urinaires,* May 1892.

SURGERY OF THE GALL BLADDER.—*M. Terrier* (Paris) introduced this subject in the French Congress of Surgery by a study of the various operations practised on the biliary ducts and gall bladder, together with a report of fourteen cases.

M. Terrillon (Paris) reported eleven cases, eight cholecystotomies, with six cures, one resulting fistula, and one death; two cholecystectomies, and one exploration. A case of exceptional interest is that of a man aged 18, who four years ago had a large hydatid cyst of the liver tapped. For some months he appeared to be cured; then swelling again occurred, which M. Terrillon took to be a return of the cyst. He punctured the swelling, and drew off liquid with the character of bile. He opened the gall bladder and vainly searched for a calculus or obliteration of the cystic duct; the gall bladder was stitched to the abdominal wall. After fifteen days a quantity of bile escaped from the fistula, continuing to flow for three days and then ceasing. This phenomenon repeated itself twice, and finally there issued from the fistula pus and hydatid fluid; this occurrence was accompanied by a sudden rise of temperature for one day, and thereafter the patient became and remained well.

M. Michaux (Paris) gave an account of two patients in whom he had done cholecystectomy, one three years and two months, and the other two years and two months previously. In both instances the indication for operation was persistent fistula; both patients had been recently heard of and were in good health, completely relieved from all symptoms of biliary lithiasis.

M. Richelot (Paris) reported a case in which he had done cholecystenterostomy for calculous obstruction of the bile duct, and several gall-stones were at the same time removed. The immediate result was excellent, but later on jaundice again increased, and the patient lost condition. Supposing that the orifice between the intestine and the gall bladder had closed, M. Richelot performed cholecystotomy, and found no trace of the opening made at the previous operation, the cystic duct being also obliterated. Believing that he felt a calculus, M. Richelot endeavoured to grasp it with forceps; the attempt was followed by a hæmorrhage which pressure scarcely checked; the abdomen was closed as rapidly as possible, and an hour later the patient died from intra-abdominal bleeding. The forceps had grasped a calcareous deposit on the wall of the right branch of the hepatic artery.

M. Bœckel (Strasburg) did not think that even old-standing fistulæ demanded treatment by cholecystectomy; in two such cases he had obtained cure by enlarging the fistula, by way of performing cholecystotomy and emptying the gall-bladder.—*Rev. de Chirurgie*, May 10, 1892.

Dr Abbe (New York) records five cases of gall-bladder surgery.—In the first, a case of biliary colic and exhaustion, a cholecystotomy was done by Dr Abbe, and three stones having been removed (two of them found wedged in the cystic duct), the incised gall-bladder was sutured and returned into the peritoneal cavity. Recovery was uninterrupted, and in October 1891—six months after—the patient's health was excellent. This case Dr Abbe cites as showing the possibility and safety of what he terms the "ideal operation" of suture and return to the abdomen of the gall-bladder in any case when the cystic-duct is pervious. As to this last point he regards probing as an inadequate guide, inasmuch as the probe may fail to pass through a pervious canal; he would in such a case fill the bladder with fluid, and see whether it could be emptied into the intestines by pressure. Dr Abbe also questions the reliability of a probe in searching for gall-stones, doubting if one can make certain of their absence without the introduction of the finger into the gall-bladder. A second interesting case Dr Abbe reports of a young woman in whom he found a solid tumour in the site of the gall-bladder, with the appearance of malignancy, and on incision having the character of carcinomatous tissue; the remnant of the gall-bladder was a small channel holding two drachms of muco-purulent fluid, but with no foreign body to be felt in it. A fistula was established, and rather unfavourable prognosis given. Six months later the patient returned to see if the sinus could not be closed; her health was restored, the sinus secreted copious mucous discharge, but no longer led into an indurated mass; the tumour could no longer be found, but in the sinus lay a gall-stone encrusted with phosphates; on its removal the sinus healed, and some months later the patient remained in robust health. The other cases reported in the paper are cholecystotomy followed by cholecystectomy after six months; cholecystectomy for impacted calculi; and a fatal case of cholæmia from malignant growth, in whom empyema of the gall-bladder was relieved by incision, and the duodenal end of the common duct explored by incision into the duodenum, which was afterwards closed by Lembert's sutures.—*New York Medical Journal*, Jan 30, 1892.

CRANIECTOMY.—*M. Chenieux* (Limoges) reported to the French Congress of Surgery two partially successful cases. The first was that of a girl aged 4, in whom premature ossification of the cranial sutures had brought about arrest of mental development. There was no paralysis, but she could not walk, and took no notice of things about her, all the senses being blunted. M. Chenieux practised craniectomy, which resulted in some amelioration of the condition, and 14 days later extended his operation along the longitudinal sinus. A few days later the patient could stand, and the parents expressed themselves as satisfied with the result. The second case was that of a boy aged almost 12, very backward, noisy, excited, and devoid of all healthy affections. In December 1890, M. Lannelongue did craniectomy along the left fronto-parietal suture, and after some months the boy appeared less excitable and more attentive. One year after this operation M. Chenieux continued the craniectomy along the right fronto-parietal suture, with manifestly good results. M. Chenieux thinks that these results encourage one to persevere in this line of treatment, and he proposes that a complete transverse craniectomy should be made at once.

M. Largeau (Niort) prefers the following mode of craniectomy as allowing of a more certain and permanent increase of the cranial capacity:—"One forms on the left side of the skull a bony groove 4 or 5 millimetres broad, reaching to the dura mater but not involving it. This groove is in the form of a horse-shoe, and embraces a plate of bone, valve or flap-shaped, 8 centimetres by 7½, which is attached below by a base 4 centimetres in breadth; this last must be broken over to increase the mobility of the part. The flap is not detached from the dura, and is formed almost wholly from the parietal bone.—*Ibid.*

THE EXAMINATION OF THE URINE BEFORE OPERATION FOR LOCALIZED EPILEPTIFORM CONDITIONS.—*M. Gilles de la Tourette* (Paris) draws attention to a valuable means of diagnosing between hysterical forms of "partial" epilepsy and true forms due to neoplasms. In the course of a research conducted under M. Charcot, upon the nutrition of hysterical patients, MM. Gilles de la Tourette and Cathelineau were enabled to establish a chemical test whereby through examination of the urine the diagnosis could be made. In cases of the latter nature at the periods of attack, there was marked increase of solid residue, phosphates, and urea; in the hysterical case, on the contrary, these elements were diminished.—*Rev. de Chirurgie*, May 1892.

THE ANATOMICAL RELATIONS OF THE CÆCUM, AND THEIR INFLUENCE ON THE OCCURRENCE OF HERNIA OF THE VISCUS.—*Dr Hildebrandt* (Göttingen), in a paper giving the results of his investigations on this subject, enters into a careful study of the developmental anatomy of the cæcum, its normal relations, the abnormalities to which it is subject, and, lastly, hernia of the cæcum, of which he has collected in all 128 cases. After remarking that in order that the cæcum should form a hernia there must be abnormal conditions pre-existent, he divides categorically these abnormalities into (1) congenital, (2) acquired. The former group he divides into —(A) alterations of the size or length of the viscus (of which he can find no mention in the literature as present in a degree in itself sufficient to allow of the cæcum becoming the contents of a hernial sac), and (B) abnormalities of situation either from (1) arrest in the fœtal state, (2) anomalies in the mesentery and ligaments, (3) attachment during the fœtal state to other organs (Testis) and traction exercised through that medium. The acquired anomalies are due to traction exercised through—(*a*) peritoneum, testicle, (*b*) other viscera, (*c*) inflammatory swellings. After discussion of the modus operandi of these various conditions in producing hernia of the cæcum, Dr Hildebrandt proceeds to the consideration of the cases collected (128 in all). Of these 80 are right and 18 left inguinal hernia; in 6 the side was not clearly specified by the observers; 11 were right femoral hernia, 11 umbilical, 12 ventral, and 1 ischiatic. The right-sided inguinal hernia of the cæcum, Dr Hildebrandt would divide into—(1) congenital, *i.e.*, present at birth, (2) those due to congenital anomalies (of processus vaginalis, or of peritoneal covering of cæcum), and (3) acquired herniæ. Of truly congenital cases he found 16 reported (12 in boys, 4 sex not given). As a rule the hernial contents were found to be cæcum, appendix, and the termination of the ileum, and these are usually free; only in 3 cases was the appendix vermiformis found attached to the sac wall and testicle. In considering the question as to whether or not there are cases of hernia of the cæcum in which there is no "sac," Dr Hildebrandt admits that in congenital cases there may be absence of the sac from a congenital anomaly, but states that in all hernia acquired later a complete sac must exist; yet from displacement of the viscus downwards the peritoneal covering may be gradually drawn up off the cæcum, and may not be seen during operation upon the case.—*Deutsche Zeit. f. Chirurgie*, 33 Band, 2 and 3 Heft.

FORTY-FOUR CASES OF STONE IN THE BLADDER.—*Jordan Lloyd* communicates a paper on his experience of these cases. The calculi were chiefly of the common varieties:—phosphates, 18; uric acid, 10; oxalate of lime, 7; 8 of mixed structure; 1 of crystalline pure triple phosphates. Mr Lloyd remarks that he did not find that the oxalate calculi gave rise to more painful symptoms than the other varieties. "Multiple stones were met with six times." . . . "Of the 44 operations, six were by crushing," this small figure being due to the fact that 21 of the cases were in boys under 15. Mr Lloyd's experiences of supra-pubic lithotomy and lithotrity lead him to think that the perineal operations can be wholly dispensed with; vaginal lithotomy he describes as a bad surgical procedure. As regards the details of the supra-pubic operation, Mr Lloyd thinks it a mistake to inject a given quantity of liquid into the bladder; he trusts entirely to the feeling of resistance offered to the inflow, and the amount of supra-pubic swelling. As to suture of the bladder wall, this he practises in its entirety only when the wall is healthy and the urine fairly normal. In connexion with one case, attention is drawn to a difficulty little referred to in this operation, viz., the impaction of a stone in the prostatic urethra with only slight projection into the bladder. In five cases complete suture of the bladder wound was attempted, twice only with success. —*Birmingham Med. Review, April* 1892.

Part Fifth.

MEDICAL NEWS.

Royal College of Physicians of Edinburgh.—The following gentlemen passed their final examination for the degree in Medicine on 7th July 1892, and were duly admitted L.R.C.P. Ed.: — John Watson, Sherwood, Ontario; Charles James Thompson, London; James Peter Fenoulhet, Herne Bay, Kent; Ambrose Atkinson, Corbridge-on-Tyne.

"Buchanan Presentation."—As this Fund will shortly close, intending subscribers should remit without delay to Dr N. Thresh, Hon. Sec., Chelmsford.

Ambulance Drill with Mounted Troops.—The Ayrshire Yeomanry Cavalry, a strong regiment of 320 horses on parade, was reviewed at the Racecourse at Ayr by Colonel Curtis, Inspector of Auxiliary Cavalry for the Northern District, on Tuesday, the 28th June, before a large concourse of people. The Ambulance Section of the Regiment, 20 men with trumpeter, under command of Surgeon Major W. J. Naismith, F.R.C.S.E., was inspected and put through the following drill:—The section was rallied by trumpet sound on the Ambulance flag—red cross on white ground—carried by the trumpeter. The section was numbered off by threes, went "threes right," the centre files being supposed to be wounded men, though still able to sit a horse. The flank files slung the bridle arms of the wounded by the Esmarch bandage, and, supporting them under the armpit on each side, divided the reins between them. In this formation the section advanced, retired, wheeled, and formed up. They were then told off by fours, dismounting by sections, for *sword-stretcher* drill. Stretchers were advanced about thirty yards, loaded, and retired with wounded to supposed dressing station, indicated by the Ambulance flag, now fixed in the ground, near the led horses. After showing the method of dismounting a wounded man from his horse, a head was dressed and bandaged for sword cut, a fractured thigh put up with sword and scabbard, and fractured collar bone adjusted in the usual way with Esmarch bandages—each man carrying one in his pouch belt. The section then formed single rank, and extended for forming two, three, and four-handed seats for the carriage of wounded men. It was then re-formed, mounted, and dismissed, the inspecting officer being pleased to express his complete approval of the thoroughness and smartness with which the interesting drill had been carried out by the men of the Ambulance Section, A.Y.C. The *Sword Stretcher* of the Regiment is of the simplest and most portable character. A piece of strong dark blue canvas, long enough and of sufficient breadth to carry a man, is constructed to admit of the introduction of four swords into narrow compartments sewn at its side edges. The lower ends or points of the scabbards are then fixed, at the central portion of the sides of the stretcher, by means of iron clamps, and the stretcher is ready for use. It is carried by the sword handles, No. 1 bearer being between the hilts in front, No. 3 in rear. The fastening of the sword knot to the upper ring of the scabbard prevents the accidental drawing of the sword blade on the march when the stretcher is loaded. Thus, wherever there are four men (*a detachment*) a stretcher can be at once formed by the simple unbuckling of their four swords, while the blue canvas with the two clamps rolled up neatly in it, is buckled behind the cantle of the saddle, after the manner of the old valise.

In the *Climatologist* for February 1892, there is a paper by Thomas J. Mays, M.D., of Philadelphia, on "Observation and Experiment in Phthisis," being a reply to Professor Tyndall. It is a forcible article, and brings many statistics to prove that Professor Tyndall is incorrect in his deductions. Dr May's concluding paragraph is as follows:—"I think I have shown that the work of Dr Cornet, in common with all the experimentation which has been devoted to showing the contagious nature of phthisis, is not only a wretched failure, but perpetrates a terrible iniquity on those who are afflicted with this disease, and wastes the time and energies of the people by misguiding them in regard to the true origin, propagation, and prevention of phthisis, and I am safe in predicting that he who persists in hugging this contagion delusion will live to reap, 'from the hopes which around him he sows, a harvest of barren regrets.'"

Liquor Rusci Detergens (Sapo Rusci).—Messrs Godfrey & Cooke, Conduit Street, W., have forwarded us some of their preparations from Oleum rusci or Russian birch tar, for trial. The liquor is an alcoholic solution of oleum rusci, a dark brown fluid, which is readily miscible with water. We have employed it in the proportion of a teaspoonful to the pint, but it may be used considerably stronger in cases which will stand it. Thus diluted it has a pleasant odour, and will be found suitable for those forms of skin disease in which the skin is dry, scaly, and infiltrated. We have tried it in a case of eczema which had passed into a thoroughly chronic condition, with satisfactory results. The soap is a superfatted one, seems well made, and no doubt would prove advantageous in cases where a tar soap is indicated. Such soaps, it should be borne in mind, are purely medicinal ones, not for ordinary toilet use, and calculated to do harm unless when employed under proper advice and direction.

Messrs Burroughs, Wellcome, & Co., the well-known chemists, have sent us samples of the following preparations:—

1. "*Peptonic Tabloids.*"—These tabloids consist of 1½ gr. each of zymine and lactophosphate of lime, coated with keratine. This forms the inner kernel of the tabloid. This is then covered with 1½ gr. of pure pepsin, and the whole coated with sugar. When these tabloids are swallowed, the sugar coating is dissolved in the stomach and the pepsin liberated. The keratine-coated kernel passes into the intestine, where the keratine is dissolved, and the zymine (which is pure pancreatin) and the lactophosphate of lime are thus enabled to supply the deficiency of the pancreatic juice. Our experience of these tabloids is, that they are very valuable in many forms of dyspepsia, and we can confidently highly recommend them to the notice of the profession.

2. "*Malt Ricine,*" *Kepler Extract of Malt.*—This is a mixture of castor-oil and extract of malt, and forms a preparation which is easily administered even to children.

Caffyn's Jelly Carnis.—We have received from the Liquor Carnis Co., Limited, a specimen of this Jelly Carnis, and regard it as an important dietetic agent.

PUBLICATIONS RECEIVED.

Wm. Adams, F.R.C.S.Eng.,—On Contractions of the Fingers and on "Hammer Toe." J. & A. Churchill, Lond., 1892.

H. W. Allingham, F.R.C.S.,—Colotomy. Ballière, Tindall, & Cox, Lond., 1892.

J. K. Barton, M.D.,—The Diagnosis of Syphilis. Fannin & Co., Dublin, 1888.

R. Boyce, M.B., M.R.C.S.,—A Text-Book of Morbid Histology. H. K. Lewis, Lond., 1892.

James Braithwaite, M.D.,—Retrospect of Medicine, Vol. 105. Simpkin, Marshall, Hamilton, Kent, & Co., London, 1892.

Alex. Theodore Brand, M.D., etc.,—A Pocket Case-Book for Practitioners and Students. Baillière, Tindall, & Cox, Lond., 1892.

T. Lauder Brunton, M.D., etc.,—An Introduction to Modern Therapeutics. Macmillan & Co., Lond., 1892.

R. E. Carrington, M.D. etc.,—Notes on Pathology. H. K. Lewis, Lond., 1892.

Daniel Chamier,—Lunacy Law. Effingham Wilson & Co., Lond., 1892.

A. Cooper, F.R.C.S., and F. S. Edwards, F.R.C.S.,—Diseases of the Rectum and Anus. J. & A. Churchill, Lond., 1892.

J. B. Curgenven, M.R.C.S., etc.,—The Disinfection of Scarlet Fever and other Infectious Diseases by Antiseptic Inunction. H. K. Lewis, Lond., 1892.

Henry Davis, M.R.C.S.,—Guide to the Administration of Anæsthetics. H. K. Lewis, Lond., 1892.

Dissertations by eminent Members of the Royal Medical Society. David Douglas, Edin., 1892.

T. B. F. Eminson.—Epidemic Pneumonia at Scotter. H. Kimpton, Lond., 1892.

Dr C. A. Ewald,—Lectures on Diseases of the Digestive Organs. New Sydenham Society, Lond., 1892.

William Ewart, M.D., etc.,—How to feel the Pulse, and what to feel in it. Baillière, Tindall, & Cox, Lond., 1892.

A. C. Farquharson, M.D.,—Ptomaines and other Animal Alkaloids. John Wright & Co., Bristol, 1892.

A. H. Goelet, M.D.,—The Electro-Therapeutics of Gynæcology, Parts I., II. Geo. S. Davis, Detroit, 1892.

J. F. Goodhart, M.D.,—The Harveian Lectures for 1891 on Common Neuroses. H. K. Lewis, Lond., 1892.

J. D. B. Gribble and Patrick Hehir, M.D.,—Outlines of Medical Jurisprudence for India. Higginbotham & Co., Madras, 1892.

Charles Hunter,—A Manual of the Dental Laboratory. Baillière, Tindall, & Cox, Lond., 1892.

International Clinics, Vols. 3, 4. Young J. Pentland, Edin., 1892.

H. J. Johnston-Lavis, M.D.,—The Prescriber's Guide to the Harrogate Mineral Waters. Henry Renshaw, London, 1892.

Hugh Lane, L.R.C.P., etc.,—Differentiation in Rheumatic Diseases. J. & A. Churchill, Lond., 1892.

A. P. Luff, M.D.,—A Manual of Chemistry. Cassell & Co., Lond., 1892.

Prof. J. G. M'Kendrick, M.D., etc.,—Life in Motion; or, Muscle and Nerve. A. & C. Black, Lond., 1892.

H. F. Morley, M.A., D.Sc., and M. M. P. Muir, M.A.,—Watts' Dictionary of Chemistry. Longmans, Green, & Co., Lond., 1892.

Quain's Elements of Anatomy. Longmans, Green, & Co., Lond., 1892.

George Reid, M.D., D.P.H.,—Practical Sanitation. Charles Griffin & Co., Lond., 1892.

Reports of the State Board of Health and Vital Statistics of Pennsylvania, 1888–90. Harrisburg, 1891.

J. James Ridge, M.D.,—Alcohol and Public Health. H. K. Lewis, Lond., 1892.

R. L. Roberts, M.D.,—Illustrated Lectures on Nursing and Hygiene. H. K. Lewis, Lond., 1892.

A. W. M. Robson, F.R.C.S.,—On Gall-Stones and their Treatment. Cassell & Co., Lond., 1892.

Dottor Carlo Ruata,—Trattato D'Igiene Publica. Città di Castello, 1892.

The Hon. Rollo Russell,—Epidemics, Plagues, and Fevers: their Causes and Prevention. Edward Stanford, London, 1892.

Charles E. Sajous, M.D.,—Annual of the Universal Medical Sciences, Vols. 1 to 5. F. A. Davis Coy., Philadelphia, 1892.

E. A. Schäfer, F.R.S.,—The Essentials of Histology. Longmans, Green, & Co., Lond., 1892.

G. E. de Schweinitz, M.D.,—Diseases of the Eye. W. B. Saunders, Philadelphia, 1892.

W. E. Steavenson, M.D., and H. L. Jones, M.D.,—Medical Electricity. H. K. Lewis, Lond., 1892.

Transactions of the American Association of Obstetrics and Gynecologists, Vol. 4. Philadelphia, 1891.

Transactions of the American Orthopedic Association, Vol. 4. Philadelphia, 1891.

Transactions of the Dermatological Association, September 1891. New York, 1891.

Transactions of the Obstetrical Society of Lond., Vol. 34, Part 1. Lond., 1892.

Frederick Treves, F.R.C.S.,—The Students' Handbook of Surgical Operations. Cassell & Co., Lond., 1892.

Francis H. Walmsley, M.D.,—Outlines of Insanity. The Scientific Press, London, 1892.

George Wilson, M.D., etc.,—A Handbook of Hygiene and Sanitary Science. J. & A. Churchill, Lond., 1892.

G. Sims Woodhead, M.D., etc.,—Practical Pathology. Young J. Pentland, Edin., 1892.

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Charles Griffin & Co., Lond., 1892.

PERIODICALS RECEIVED.

Abstract and Index,—Sept.-June.

Albany Medical Annals,—June-Dec.

Alienist and Neurologist,—Oct.-April.

American Journal of Obstetrics,—Sept.-July.

American Journal of the Medical Sciences,—Sept.-July.

American Lancet,—Sept.-July.

American Practitioner and News,—Aug.-June.

Annales d'Oculistique,—Aug.-June.

Annales de Dermatologie, etc.,—Aug.-June.

Annales de Gynécologie,—Oct.

Annales des Maladies des Organes Génito-urinaires,—Sept.-July.

Annales des Maladies de l'Oreille, etc.,—Oct.-July.

Annales de la Policlinique de Bordeaux,—July-April.

Annales de la Policlinique de Lille,—Jan.

Annales de Médecine,—April.-June.

Annales et Bulletin de la Société de Médecine d'Anvers,—July-June.

Annali di Ostetricia e Ginecologia,—Aug.-June.

Archives Cliniques de Bordeaux,—Jan., Feb.

Archives de Tocologie,—Sept.-July.

Archives Générales de Médecine,—Sept.-July.

Archives of Gynæcology,—Sept.-May.

Archives of Pediatrics,—Sept.-July.

Archives of Surgery,—Oct.-July.

Archives Provinciales de Chirurgie,—July.

Asclepiad,—Sept.-July.

Atti della Associazione Medica Lombarda,—Aug.-June.

Australasian Medical Gazette,—Aug.-May.

Australian Medical Journal,—Nov.

Bacteriological World,—March.

Berliner Klin. Wochenschrift,—Aug. 31-July 18.

Birmingham Medical Review,—Sept.-July.

Births, Deaths, and Marriages, Monthly Return of,—Aug.-June.

Do., Quarterly Return of,—Sept.-Dec.

Do., Quarterly Report,—Sept.-March.

Do., Supplement for 1890.

Blatter für Klinische Hydrotherapie,—Sept.-July.

Boletin Medico de Puebla.—Aug.-Jan.
Boston Medical and Surgical Journal,—Aug. 20-July 7.
Bristol Medico-Chirurgical Journal,—Sept.-June.
British Gynæcological Journal,—Aug.-May.
British Medical Journal,—Aug.-July.
British Journal of Dermatology,—Sept.-June.
Brooklyn Medical Journal,—Sept.-July.
Bulletins et Mémoires de la Société Obstétricale et Gynécologique de Paris,—July-July.
Bulletin Général de Thérapeutique,—Feb. 30.
Centralblatt für Nervenheilkunde und Psychiatrie,—Sept.-July.
Centralblatt für Gynäkologie,—August 29-July 16.
Centralblatt für Chirurgie,—August 29-July 16.
Centralblatt für Klinische Medicin,—April 9.
Centralblatt für Bacteriologie und Parasitenkunde,—Nos. 7-24. Band xi., Nos. 1-26. Band xii., No. 1.
Chemist and Druggist,—Sept. 5-July 23.
Chirurgie contemporaine des Organes Génito-Urinaires,—June.
Chicago Corpuscle,—Feb.
Chicago Medical Recorder.—Sept.-Nov.
Detroit Emergency Hospital Reports,—Dec.
Dietetic Gazette,—Sept.-July.
Dublin Journal of Medical Science,—Sept.-July.
Ephemeris of Materia Medica, etc.,—April.
France Médicale,—Aug. 28-July 22.
Gazette des Hôpitaux,—Feb. 21.
Gazette Médicale de Paris,—Aug. 29-July 16.
Gazzetta Medica di Torino,—Aug. 15-June 30.
Giornale Medico,—Jan.-March.
Glasgow Medical Journal,—Sept.-July.
Habana El Progreso Medico,—Feb.
Humanitarian,—July.
Hygiene,—Sept.-May.
Index Medicus,—Aug.-May.
Indian Medical Gazette,—Aug.-June.
International Medical Magazine,—June.
Jahrbuch für Kinderheilkunde,—Band 33. Heft. 1-4; Bd. 34, Heft. 1.
Journal de Médecine de Paris,—August 30-July 17.
Journal of Anatomy and Physiology,—Oct.-July.
Journal of Cutaneous and Genito-Urinary Diseases,—Sept.-July.
Journal of Laryngology and Rhinology,—March.
Journal of Mental Science,—Oct.-July.
Journal of Nervous and Mental Disease,—Sept.-June.
Journal of the American Medical Association,—Aug. 15-July 9.
Journal of the Scottish Meteorological Society,—No. 8.
Journal of the British Dental Association,—Sept.-June.
Klinische Monatsbläter für Augenheilkunde, —Sept.-July.
Liverpool Medico-Chirurgical Journal,—Jan.
Medical Chronicle,—Sept.-July.
Medical Magazine,—July.
Medical Press and Circular,—Sept. 2-July 20.
Merck's Bulletin,—March.
Montreal Medical Journal,—Sept.-June.
Morningside Mirror,—July-April.
New York Archives of Gynæcology, etc.,—Jan.-March.
New York Doctors' Weekly,—June 18-25.
New York Journal of Gynæcology and Obstetrics,—Nov.-June.
New York Medical Record,—May 14.-July 9.
New York Medical Journal,—Aug. 22-July 9.
New York—Notes on New Remedies,—April.
New York Post-Graduate,—April.
Nordiskt Medicinskt Arkiv,—Band 22. Nos. 14-33; Bd. ii., Nos. 1-19.
Nursing Record,—Jan.
Occidental Medical Times,—March-July.
Pharmaceutical Journal of Australasia,—July-May.
Philadelphia Climatologist,—Feb.
Philadelphia International Medical Magazine,—Feb.-April.
Philadelphia Journal of Medical Philosophy and Practice,—May.
Philadelphia Medical and Surgical Reporter, Aug. 22-July 2.
Philadelphia Medical News,—Aug. 22-July 9.
Philadelphia Satellite,—Aug.-July.
Phrenological Record,—Jan.
Practitioner,—Sept.-July..
Presse Médicale Belge,—Jan. 10.
Proceedings of the Society for the Study of Inebriety,—Nov.-May.
Progrès Médical,—Aug. 29.-July 16.
Progresso Medico,—Sept.-June.
Revista de Ciencias Médicas de Barcelona,—Nov.
Revue de Chirurgie,—Aug.-July.
Revue de Thérapeutique Médico-Chirurgicale,—Sept.-July.
Revue Générale de Clinique et de Thérapeutique,—Sept. 2-July 20.
Revue Générale de Médecine, etc.,—Jan.-July.
Revue Internationale de Bibliographie Médicale, etc.,—Oct. 25.
Revue Internationale d'Electrothérapie,—July.
Revue Internationale de Rhinologie, etc.,—Dec.-March.
Revue Médicale de la Suisse Romande,—Dec.
Revue Mensuelle de l'École d'Anthropologie de Paris,—July.
Sanitarian,—Jan.
Sei-i-Kwai Medical Journal,—July-May.
St Louis Courier of Medicine,—Jan.-April.
St Louis Medical Review,—June 4.
Toledo Medical Compend,—Oct.-Dec.
Therapeutic Gazette,—Sept.-June.
Univers Médical,—Sept. 15.
Virchow's Archiv,—Aug.-June.
Weekblad van het Nederlandsch Tijdschrift Geneeskunde,—Aug. 29-July 16.

Part First.

ORIGINAL COMMUNICATIONS.

I.—NOTES OF A CASE BEARING ON A RELATION BETWEEN MENSTRUATION AND IMPREGNATION.

By R. Milne Murray, M.A., M.B., F.R.C.P., F.R.S.E., Lecturer on Midwifery and Diseases of Women, Edinburgh School of Medicine.

(*Read before the Obstetrical Society of Edinburgh, July* 13, 1892.)

A glance at the literature bearing on the relation between insemination, menstruation, and conception, shows how much interest centres in this subject. And yet in spite of all that has been written and said on the matter, our views are by no means as definite as they should be. It is no purpose of mine at present to traverse the facts or the literature of this subject; but a case which has recently arisen in my practice presents points of sufficient interest in this connexion to justify me, I think, in laying the details before the Society to-night.

Mrs S——, 36, married 10 years and sterile, came under my care in October 1888. She had for some years suffered from frequent headaches, attacks of nausea and vomiting, loss of appetite, and other symptoms referred to the alimentary system, and had been treated for dyspepsia by many remedies, but without permanent relief. On inquiry I found that her symptoms were always most marked during the week preceding menstruation, and that for a week or ten days after menstruation she was generally fairly comfortable. Menstruation was regular every 28 days, lasting for 4 days. The discharge was rather scanty, and there was considerable pelvic distress during the first two days. The patient was a tall, spare woman, fond of exercise, and leading a fairly active life in spite of her chronic discomfort.

Seeing that her dyspeptic symptoms had refused to yield to the treatment already adopted, and as the local symptoms pointed to a probable pelvic cause, I examined her and found the cervix hard and conical, the external os somewhat contracted, and the uterus retroverted and retroflexed, the fundus being low down in the posterior fornix, and the cervix high up behind the pubis. The whole pelvis was tender, the lateral fornices especially so, but no definite enlargement of tubes or ovaries could be made out. The uterus did not seem to be bound down, but any attempt to dislodge it was checked by the severe pain set up.

I put the patient to bed under the care of a nurse, and ordered a hot vaginal douche twice daily, and packed the vagina every day with glycerine tampons. In about 10 days I was able to pass a sound without undue pain and turn the uterus forward. The hot douches were continued for about 14 days more, and the uterus, which tended always to resume the retroverted position, was replaced twice subsequently by the sound, and on each occasion Ellinger's dilators were passed and the cervical canal slightly stretched.

The menstrual flow began on the 24th day after the treatment was commenced, and was normal in amount and free from pain. She had had no headache since lying up, and her digestive organs were acting normally. As soon as the menstrual process was completed I again replaced the uterus and introduced a well-curved Albert Smith pessary, and allowed her to get about under reasonable restrictions.

She reported herself early in 1889, and said she was in perfect health, and was obviously laying on flesh; her menstruation had been perfectly normal since November, and the headaches had never returned. She came to see me at intervals during 1889, and had the pessary removed and replaced, and she said she had never been so well since her marriage.

About the end of October 1889 I thought I might venture to remove the pessary altogether, and see whether the uterus would retain its proper position. She remained fairly well for a couple of months, but returned in January 1890 to say that the old symptoms were returning. On vaginal examination I found the uterus again lying backwards and some tenderness on either side. I ordered her to use the hot douche for a little and then introduced the pessary. The symptoms disappeared almost at once, and she came about the middle of March and asked me to remove the pessary, as she was to be away for some weeks and was afraid something might go wrong with it. This I did, and when I saw her again in May the uterus was normal and she in perfect health, but in a few weeks she again complained of the recurrence of the old troubles, and the pessary was reintroduced and worn during June and July. It was removed in August, as she was leaving town.

I did not see her again till the 27th March 1891. She came to see me looking exceedingly well, but saying that she had not menstruated since December. On examination I found the vagina and uterus soft, the uterus enlarged, the fundus at the brim, and with all the characteristics of being about three months pregnant. I told her my opinion of her condition, and she immediately said, "That cannot be, it is impossible." On my asking why, she said, "Because I was unwell after I was last with my husband."

On further inquiry she gave me the following account of herself from the time I saw her in August 1890. She remained in the country till the beginning of September. She returned home quite well in every way, but in about three weeks felt so ill that she was on the point of sending for me when she was summoned to the country to nurse a sick relative. She had not been more than a week in the country when she began to improve, and in spite of work and anxiety got quite well again. She had been convinced in her own mind for more than a year that the return of her old symptoms and the general breakdown in her health were the result of the resumption of marital relations on her return home. On all the occasions on which she had been in the country during the last year she had been there alone, and she accordingly attributed the recurrence of her symptoms to her return to her husband.

Accordingly, about the beginning of December, she wrote to her husband from the country expressing this opinion, and suggesting that they might make the experiment of occupying, for a time at least, separate bedrooms. To this he consented, and got a room prepared for himself against his wife's return. She returned on the 18th December, but in spite of this resolution intercourse took place that night. This, however, was the only time on which this happened after her return. In the early morning of the 19th she became unwell, and had a perfectly natural period, lasting for the usual time and of normal amount. Accordingly, though she had been at a loss to account for the stoppage of her periods, she could not believe that she was pregnant, more especially as her thirteen years of sterility had put all such ideas out of her head. There was no doubt, however, of her condition, for I attended her on the 16th September, and delivered her of a healthy fœtus weighing 8 lbs.

Of course, the interest and value of such a case depends primarily on the absolute accuracy of the facts, and this again hangs on the veracity of the patient. Of this last element I have no fraction of doubt, and there was obviously no reason for any concealment or prevarication. Moreover, I took an early opportunity of questioning her husband regarding the circumstances of his wife's return, and he confirmed her statement in every particular.

Assuming the facts, then, to be as I have stated them, the case is one which presents some points of scientific and clinical interest.

The first matter of note is the interval between the date of coitus, 18th December 1890, and that of labour, 16th September 1891, which is exactly 272 days. Now, it is a remarkable fact that this number corresponds almost exactly with the average duration of a large number of cases collected by Loewenhardt, Leuchardt, and Hasler.

Loewenhardt[1] collected 518 cases in which the woman could state exactly the date of coitus, and he found that the average duration was 272·2 days. Leuchardt[2] collected 67 cases from the marriage and birth register of a church, and found that the average duration of pregnancy in cases in which the child was born within ten months of marriage was 272·5 days. Hasler[3] compared a large number of cases in which the date of coitus could be determined, and found the mean duration of pregnancy was 272·24 days from the coitus.

Other cases have been collected by Ahlfeldt,[4] who found an average of 271 days in 425 cases; by Hecker,[5] who from 108 cases found an average of 273·52 days. Duncan[6] collected 46 cases, and found an average of 275 days; while Veit collected 43, and found an average of 276·42 days.

These last two sets, while giving a larger period, are less reliable than those previously quoted, since they are based on a much smaller number of cases; and it is interesting to note that the case now recorded agrees wonderfully with the mean of the largest number of collected cases.

It is further to be noted that the calculation of the onset of labour from the last menstruation would have been in this case a fallacious reckoning. Taking the ordinary method given in the periodoscopes, and allowing 280 days from the last day of the last menstruation, we should have come to the 27th September instead of the 16th; and while, for want of a better opinion, I mentioned this day to my patient, I warned her to be prepared a week or ten days beforehand.

This case is also of interest in indicating that the process of menstruation does not apparently interfere with the passage of the spermatozoa along the uterine cavity. Unless we claim a rate of travel for the spermatozoa much greater than is ordinarily admitted, they must have been caught in the menstrual discharge which began to flow within an hour or two after they were thrown into the vagina. In spite of this, however, they must have made their way against the downward current of the menstrual blood, and have reached the Fallopian tube in good time to fertilize the ovum discharged. This fact seems to tell somewhat against the view held by Tait,[7] that fertilization normally takes place in the uterus, and that the cilia of the tube are there as a safeguard to prevent the spermatozoa entering the tube. According to his view, it is only in diseased tubes, where the cilia are absent or ineffective, that the spermatozoa enter the tube, the current set up by healthy cilia being in all cases sufficient to prevent their ingress. It seems to me, however, that if spermatozoa can make their way against a free menstrual discharge, the ciliary current of the Fallopian tube need give them little trouble.

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[1] *Archiv für Gynæk.*, B. iii., 1872, p. 457.

[2] *American Syst. Obstetrics*, vol. i. p. 95.

[3] *Ueber die Dauer der Schwangerschaft*, Zurich, 1876.

[4] *Monatsch. für Gebursk.*, xxxiv., 1869, p. 180.

[5] *Ibid.*

[6] *Fecundity, Fertility, and Sterility*, second edition, p. 435.

[7] *Lectures on Ectopic Pregnancy*, p. 4.

In connexion with this matter, Duncan points out that where a fertilizing insemination takes place just before the period is due the latter frequently "does not take place at all, or only very scantily; the uterine system, as it were, anticipating the conception and preventing the failure which might result from a free discharge of blood." It is evident that such cases occurring in married women would be very liable to be considered "cases of gestation protracted a month."[1]

In this respect my case differs from these referred to here, for the patient assures me that the period was a perfectly natural one, in no respect differing from any of those which had immediately preceded it.

In discussing the mechanical influences of the menstrual flow on spermatozoa lying in the lower part of the genital tract, Duncan gives it as his opinion that they would be washed away by the discharge. At the same time he cites a case, recorded by Mauriceau, in which a woman was impregnated during the flow of the menses.

Lastly, one may inquire, Why should this single coitus after thirteen years of married life be followed by conception? The only explanation I can offer is, that the woman had been longer absent from her husband than on any previous occasion. She was in perfect health, generally and locally. She returned to her husband at the very time when conception is most likely to occur—namely, about the menstrual period—and any tendency to abortion which she may have had was not in this case excited by subsequent acts of intercourse. I am persuaded that the prolonged absence from home and the caution against too free indulgence in intercourse have in many cases as much to do with the cure of cases of old-standing sterility, of which we hear and read, as the so-called treatment by the world-renowned specialists, who, however, claim all the credit.

II.—ON INFANTILE RESPIRATORY SPASM (CONGENITAL LARYNGEAL STRIDOR).

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(*Read before the Medico-Chirurgical Society of Edinburgh*, 1*st June* 1892.)

Infantile respiratory spasm, or congenital laryngeal stridor as it is sometimes called, is a peculiar form of obstruction of the respiration occurring in very young infants. It is not often met with in its most marked forms; it is not of serious import for the child's health; and it is not amenable to any special treatment. These considerations may perhaps account for the somewhat surprising fact that the condition is not even mentioned in most of the text books on diseases of children or laryngology, and is nowhere fully discussed. It is, nevertheless, well worthy of attention from a clinical point of view, because it is apt to cause anxiety owing to its being mistaken for some more serious disease; and also from the point of view of pathology, because its causation is not as yet thoroughly understood.

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[1] *Fecundity, Fertility, and Sterility*, p. 431.

In the few references to the condition in medical literature which I have been able to find, a different name has been used in describing it almost every time. Thus, Dr D. B. Lees,[1] describing the post-mortem appearances of a case, speaks of it as a "Peculiar Form of Obstructed Respiration;" Dr Gee[2] calls some cases which seem to be of the same nature (although in some respects different) "Respiratory Croaking;" and Dr Goodhart[3] refers to the ailment as "Infantile Laryngeal Spasm." Again, Dr Suckling,[4] on showing a case to the Midland Medical Society two years ago, called it "Congenital Laryngeal Stridor;" Dr Löri of Pesth[5] uses the term "Clonic Spasm of the Glottis;" and Dr Robertson[6] has described one case apparently of this nature, along with others, under the designation "Posticus Paralysis."

Probably the best of the names is that used by Dr Goodhart, but it is perhaps preferable to call the affection "Respiratory" rather than "Laryngeal" spasm, as it seems doubtful whether there is any more spasm of the laryngeal muscles than there is of the other muscles involved in the respiratory act. "Congenital Laryngeal Stridor" is also a good name, and has the advantage of marking more distinctly than the other the clinical difference between this ailment and ordinary laryngismus.

During the last two or three years, I have had the opportunity of studying five well-marked examples of this affection, as well as a few other milder cases apparently of the same nature. In the present paper I propose to draw attention to the clinical histories and symptoms of these; to the data which they afford for determining the pathology of the condition; and to the conclusions that may reasonably be drawn from them.

The following are notes of the five most characteristic cases:—

CASE I.

John K., aged 4 months, brought to the Sick Children's Hospital on 7th April 1890, because of noisy breathing. Both parents are strong and healthy; their only other child, a boy, is quite normal and healthy. The mother was quite well during her pregnancy, and the labour was easy and natural. The child has been on the breast and has thriven well.

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[1] *Trans. Path. Soc. Lond.*, xxxiv. p. 19.
[2] *St Bart. Hosp. Rep.*, xx. p. 15.
[3] Goodhart, *Diseases of Children*, 1885, p. 251.
[4] *British Med. Journ.*, 1890, i. p. 607.
[5] Löri, *Allg. Wiener med. Zeitung*, 1890, No. 49.
[6] Robertson, *Journal of Laryngology*, Oct. 1891.

When about a fortnight old he took a "cold," and his mother thinks that it was at that time that the noisy breathing began; at least she does not remember it before. The noise is rather less loud now, on the whole, than it used to be, but it varies a good deal from time to time. It is said to be worse if he is excited, and also if he has any cold. He is thriving very well in other respects, and has nothing else the matter with him except a scurfy condition of the scalp and occasional dyspepsia with green slimy motions.

The patient is a big, but rather pale and flabby child. There is no evidence of rickets and no malformation of any kind, and the heart and abdominal organs are normal. There is a strip of impaired percussion at the base of the right lung, otherwise the chest is normal. The respirations are 40 per minute (pulse 140), and they are accompanied by a loud noise which varies in intensity from time to time. The inspiration begins with a hoarse sound, and when the noise is at its loudest, ends in a sort of squeak or crow, which the mother well describes as "just like a hen." Expiration is accompanied by a shorter grunting sound. The cry is quite clear and natural. There is considerable indrawing of the lower antero-lateral aspects of the thorax at each breath, and the chest seems permanently narrowed in that region. On auscultation, the stridor is heard very loudly all over the chest. The fauces and tonsils are red and swollen from chronic catarrh. Dr R. W. Philip kindly examined the larynx along with me; only a partial view of it could be obtained, but so far as it was seen it appeared normal. Advice was given about diet, and a tonic prescribed.

21*st May* 1890.—The stridor is a good deal less loud and the periods of intermission much longer. The child is bigger and stronger; he is perfectly intelligent, although rather phlegmatic.

Dec. 1892.—Since the last note the child has been living in the country. The stridor is said by his parents to have disappeared about six months ago. Latterly it was only heard when he was annoyed or excited. From his mother's account, he is evidently very rickety.

CASE II.

Harry W., aged 6 weeks, sent to the Sick Children's Hospital on 7th March 1891 by Dr Macdonald Robertson, on account of his peculiar breathing and for wasting. His parents, who are German Jews, are healthy, and he is their first child. The mother was well during her pregnancy, and her labour was easy and very short.

At birth, the child breathed in the same way as he does now, but the noise was not so loud; it has gradually got worse. It is not always equally loud, and sometimes ceases altogether when the child is awake. When he is asleep it is sometimes present, sometimes not.

The infant is very small and emaciated. He is on the breast, and has some dyspeptic symptoms due to injudicious feeding. There is no congenital abnormality and no sign of rickets. The heart and the abdominal organs are normal. The percussion note over both bases is slightly impaired, but otherwise the lungs seem normal. The fauces are normal. Each inspiration is accompanied by a loud crowing sound, and there is also a slight noise with expiration. With each inspiration there is an exceedingly marked indrawing of the lower antero-lateral regions of the chest-wall and epigastrium, and also of the episternal notch. The child, however, does not seem at all distressed by dyspnœa, and there is no cyanosis. The cry is clear and strong.

2nd March 1892.—The child has steadily improved during the last year. He seems well-grown, well-nourished, and very intelligent. The noise with the respiration is much less loud, and the free intervals are much longer and oftener. When the stridor is present, the inspiratory sound is a sort of grunt or croak, and the expiration is accompanied by a blowing noise which is scarcely audible at a little distance. There is now only very slight inspiratory indrawing of the lower parts of the chest. There is some beading of the ribs and a certain amount of pigeon-breast. Dr M^{c}Bride kindly examined the throat. He found the fauces and upper part of the larynx absolutely normal, but was unable to get a good view of the vocal cords.

CASE III.

Jeannie C., aged 11 weeks, brought to the Sick Children's Hospital, from the country on 22nd Oct. 1891, on account of her peculiar breathing and because she was not thriving. Both parents are said to be healthy, but the mother is "not strong" and looks anæmic. The patient is their seventh child. The fourth and fifth children died "from weakness" within a few days of birth; none of the family have suffered from any peculiarity of breathing. Labour was short, easy, and natural. The child has been given nothing but breast-milk; she frequently vomits, bringing up phlegm along with the milk.

The peculiarity of the breathing was noticed immediately after birth, and has remained about the same ever since. The noise disappears usually during sleep.

The infant is small and emaciated, but beyond the abnormal respiration shows no sign of disease or deformity. The cranium, heart, lungs, and abdominal organs are normal. The sternum is bulged forwards owing to the prolonged obstructed breathing. The respirations are usually about 40 per minute (pulse 140). The fauces, pharynx, and epiglottis seem quite normal. The vocal cords cannot be seen.

The inspiration is very noisy, beginning with a low pitch, but ending in a loud crowing sound like that of croup. The expiration is sometimes accompanied by a short grunting noise, but is usually inaudible. The loudness of the sound varies from time to time. When it is at its loudest, the child's attitude is somewhat peculiar. She lies with her elbows out from her sides, her arms, wrists, and fingers being all much flexed and rigid. Her parents have noticed this attitude. The sterno-mastoids are seen to work strongly with each breath, and there is *very great* retraction of the episternal notch, so that it is alternately a slightly bulging prominence and a hollow fully half an inch in depth. The lower antero-lateral regions of the chest and the epigastrium are also retracted to an extreme degree with each inspiration. On looking at the violent movements of the muscles of respiration, and listening to the loud stridor, it is difficult to resist the idea that the infant must be in great distress; but on looking at her face, one notices that there is no cyanosis, that the alæ nasi are scarcely moving at all, and that the infant seems contented and happy, and is interested in what is going on around her. When she is watched for a little, it is noticed that she occasionally takes a full breath without any obstruction. The cry is very slightly hoarse.

27*th Nov.*—The child looks a little stronger; the breathing is very much as before; the cry is quite clear. Dr McBride kindly examined her, and reports that the pharynx and the epiglottis and the rest of the larynx, so far as can be seen, appear normal, but that the larynx cannot be properly examined owing to the tendency to vomiting—milk from the stomach flooding the larynx whenever an attempt at examination is made.

24*th Dec.*—The general nutrition of the child is much better, but she has now a distinct rickety rosary. The breathing has much improved; the indrawing of the episternal notch and of the lower parts of the thorax is much less. The stridor is the same as before in character, but is not nearly so loud; the intermissions are longer and more frequent. Even when the breathing is noiseless, there is slight inspiratory retraction of the chest wall. The child often starts during sleep, and when she does so, she puts her hand up to her mouth.

April 1892.—The patient is much stronger, the stridor is less loud, and the free intervals longer. The retraction of the chest wall is also less.

Case IV.

James T., aged 11 weeks, sent to the Sick Children's Hospital on 5th March 1892 by Dr David Davidson on account of obstructed breathing. Both parents are healthy, and the patient is their first child. The mother was well during her pregnancy, but her labour was difficult, and chloroform and instruments had to be employed. The child is on the breast and has nothing wrong with him except the stridor, and he has always thriven very well.

The noisy breathing was noticed immediately after birth, but at that time it was not so loud as it is now. When the child is sound asleep the noise ceases, but when he is not "very sound" it goes on continuously as during waking, with occasional short pauses and marked variations in intensity.

The patient is a very well developed healthy baby. There is no sign of rickets or of disease or malformation of any organ; and even when the noise is loudest there is no cyanosis. Nor is there any visible movement of the alæ nasi. There is no "facial irritability." The palate is highly arched. The fauces and epiglottis are normal.

The stridor is almost constantly present, but occasionally it ceases entirely for one or two minutes. It varies markedly in intensity from time to time. The more excited the child is, the louder is the noise; but, if he cries outright, the inspiration becomes almost noiseless. The cry is clear, loud, and long. The inspiration begins with a croak and ends with a high-pitched crow ("like a hen"). It is usually interrupted (being composed of two parts with a sort of jerk between). Expiration is accompanied by a short croak when the noise is loud; at other times it is almost, or entirely inaudible. The child seems quite happy and at ease, and is not distressed even when the noise is loudest. The stridor continues equally loud, although of a somewhat different pitch, when the child is taking the breast. The thorax is tolerably well formed, but there is some forward bulging of the sternum. There is almost no inspiratory indrawing in the episternal notch, but *very much* of the epigastrium and lower antero-lateral parts of the thorax. On auscultation loud snoring is heard all over the chest, and there is marked fremitus.

9th March.—Examined by Dr McBride, who reports that "the epiglottis is folded on itself and becomes more so on forced inspiration. At the same time, the air seems to pass through a narrow orifice bounded behind by the arytenoid cartilages and in front and laterally by the folded epiglottis. Cords not seen. Pharynx quite normal."

24th May.—The child is growing fatter and stronger, but is suffering at present from slight bronchitis. The stridor is much less marked and less frequent. It is now heard only during inspiration, and the croaking sound predominates. The noise persists when the nose is pinched, when the tongue is depressed, when the child yawns, and when he is taking the breast. The cough is clear and natural. During screaming, the stridor ceases.

CASE V.

Priscilla F., aged 10 weeks, a dispensary patient of Dr George Thyne's, seen with Dr McBride at the Royal Infirmary on 25th May 1892. The father is strong and healthy, the mother has frequently suffered from hysteria. The patient is their sixth child. None of the other children ever breathed in the same way. The mother suffered from hysteria during her pregnancy. The labour was very short and easy. The mother has had little milk in her breasts, and the child seems to have been starved and dyspeptic, but otherwise she has been healthy.

The noisy breathing was not noticed till the end of the first week after birth—when the mother got up for the first time. It seems to be getting louder as the child gets stronger. The sound varies in loudness from time to time, and is often absent for a long time. The mother thinks that it is absent each day for about the same length of time as it is present. When the child is sound asleep she is always quiet; but when the sleep is not profound it may or may not be present.

The patient is a well-formed but rather ill-nourished baby, with no signs of rickets or syphilis or any other disease. The head, heart, lungs, and abdominal organs seem normal. There is no "facial irritability," no cyanosis, no distress, and no movement of the alæ nasi when the breathing is noisy. The fauces, pharynx, and larynx, so far as seen (by Dr McBride), are quite normal. Respirations 44; pulse, 144.

The stridor is of the same character as that heard in the other cases, but it is less loud, the croaking part of it is shorter, and it is not nearly so continuous, frequently stopping for quite a long period if the child is undisturbed. Holding the nose, stopping the mouth, depressing the tongue, do not stop the sound. The respirations seem a little quicker when the stridor is present than at other times.

In addition to these more or less severe and typical cases, I have seen two slight ones in otherwise normal children. In these the stridor only occurred for a short time each day, was not very loud, and passed away when the children were a few months old. In one of these cases (which Dr Pirie kindly showed me), after the stridor had almost quite ceased to be heard, the infant had recurrence of the spasm from time to time in a slighter form, accompanied by marked inspiratory indrawing of the chest wall *without* any noise whatever.

I have also seen two apparently similar slight cases in idiot children—both boys—aged 18 months and 3 weeks respectively; but I was not able to be sure in either of them that the noise produced was of exactly similar nature to that in the others.

Clinical Features.

It will be well now to consider separately the various clinical facts observed in the five well-marked cases.

1. *Sex.*—Three of the infants were boys and two girls. This is interesting, because in all the formerly published cases in which the sex is mentioned the patients were girls (9 of Dr Gee's and 5

of Dr Lees'); and the malady is often spoken of as being confined to the female sex.

2. *Family History, etc.*—The parents were all tolerably healthy, but one of the mothers was hysterical and one "delicate." In no case had any other child or relative of the family suffered from a like complaint. In four of the cases the mother was very well during her pregnancy; and also in four of them the labour was very short and easy.

3. *General Health.*—In one case the child was in excellent health and apparently free from dyspepsia. In the other four there was more or less indigestion. In all the cases the intellectual development seemed perfectly good, and there was no abnormality or disease of any organ, except probably a little collapse at the base of the lungs in some of the children. There was no rickets in any of the children when first seen; but it appeared later in those longest observed. "Facial irritability" was absent in the four cases in which it was tested. There was no sign of congenital syphilis in any of the cases.

4. *The Onset of the Stridor* was noticed in one case a fortnight, in another a week after birth; in the rest the noise was observed immediately after birth.

5. *The Course of the Malady.*—Roughly speaking, we may say that in severe cases the stridor goes on increasing in loudness during the first two or three months, and then tends to slow spontaneous improvement. In one case it was said to have disappeared by the time the child was 18 months old. In another it is still present, although much less severe, at 16 months. As improvement goes on, the intervals become longer and the noise less loud; the crowing sound with inspiration is less often heard, only the croaking being usually audible. After the stridor has ceased to be noticed under ordinary circumstances, it may reappear if the child is specially excited or annoyed.

6. *Character of the Abnormal Sound.*—During the presence of the stridor, inspiration begins with a croaking noise, and ends in a high-pitched crow, which two of the mothers correctly described as "very like a hen." When the breathing is quiet, the crow does not occur and only the croaking is heard. Expiration is accompanied by a short croak when the stridor is loud, but at other times it is noiseless.

7. *The Cry* was in one case a little hoarse on one occasion; but as a rule in these cases it is perfectly clear and long and loud. One of the children had a cough, from bronchitis, and it was perfectly normal in character.

8. *The Throat and Larynx.*—In the first case there was some chronic catarrh of the pharynx, and enlarged tonsils; but the larynx, so far as it was seen by Dr Philip and myself, was normal. The other four cases were examined by Dr McBride, and I have his authority for saying that the parts were normal so far as they

could be seen. In every case the epiglottis could be clearly seen, but the minute appearances of the larynx were concealed by regurgitated fluid. Although it is quite true that the larynx has occasionally been examined in very young infants, we doubt the possibility of studying in them the mobility of the vocal cords, which requires co-operation on the part of the patient—at least, without the infliction of more pain than the importance of the question at issue seems to justify.

9. *The Inspiratory Indrawing of the Chest-Wall and Episternal Notch* were very slight in Case V., but well marked in the other four cases (especially II. and III.), and when the condition had lasted some time, there was distinct evidence of commencing pigeon-breast.

10. *The Alæ Nasi* moved little, if at all, with respiration, and this was a striking feature in those cases in which the breathing was very laboured.

11. *Absence of Distress or Cyanosis.*—Another most striking feature of the cases is the fact that even when there is extremely marked indrawing of the lower parts of the chest-wall with each inspiration, and the constant stridor suggests the idea of great distress, one finds that the infant appears comfortable and looks about him quite unconcerned. There never was any cyanosis in any of my cases when I saw them.

12. *Intermissions and Variations in Intensity of the Sounds* occurred in all the cases. Even when the condition is most constant and severe, there are from time to time intervals of a minute or more, during which little or no noise is heard, and one often observes an occasional full, long, noiseless breath in the midst of the noisy respirations. Also when the stridor is going on regularly, the loudness of it constantly varies without apparent cause.

13. *Effect on the Sounds of various Influences*—

Mental perturbation always intensifies them, and the intermissions above referred to usually occur when the child is not excited. If, however, the child cries outright, there is no dyspnœa, and the stridor is either quite absent, or at any rate much less marked than when he is merely excited and apprehensive.

Sleep seems sometimes to stop the stridor and sometimes to have no effect on it. Probably the fact is, as two of the mothers put it, that if the child is sound asleep the noise stops, but if he is not sleeping soundly, it goes on as usual.

If the child *yawns*, or his *tongue is depressed* by a spatula, the sound goes on as usual; and it also does so when *the nostrils are closed.*

Taking the breast does not interfere with the stridor. When the mouth is occluded by the nipple, the air entering by the nose is still sufficient to cause a loud noise, although its pitch is somewhat different from that heard during breathing through the mouth.

14. *The Effect of the Ailment on the General Health* is not great, and if, as in Case IV., the child is otherwise quite strong, its growth and development are not interfered with.

15. On the *Effect of Treatment on the Condition* I have nothing to say, except that when, from regulation of the diet or other cause, there was a marked improvement in the child's general health and tone, the local spasm distinctly improved at the same time.

Etiology and Pathology.

With regard to the *proximate cause of the abnormal sounds,* it is interesting to observe that most of the previous writers on the subject seem to have held different views of the mechanism of their production. For example :—

Dr Gee is of opinion that in his cases the sound was produced in the fauces and not in the larynx.

Dr Lees, who had the opportunity of examining a case post-mortem, attributes the respiratory obstruction to a congenital malformation of the upper part of the windpipe, the epiglottis being abnormally " curled inwards," etc.—an exaggeration, apparently, of the normal infantile peculiarities of the parts.

Dr Robertson thinks that the condition is due to paralysis of the postici.

Dr Löri describes with great minuteness the periodic recurrence of a spasmodic closure of the glottis which he found on laryngoscopic examination of his cases.

In my cases, the nature of the sound was such as to render it indisputable that part of it, at least, arose *in the larynx.* Had there been any doubt about this, it would have been dispelled by the fact of the noise persisting, not only when the nostrils were closed, but equally when the mouth was occluded by the nipple, and also when the tongue was depressed by a spatula and during yawning.

It is also, I think, equally certain that the obstruction is due to *spasmodic muscular contraction.* How else can we account for the more or less frequent free intervals, which were so striking a feature of my cases, and which are also noted in all careful clinical descriptions of this ailment ? Or how otherwise can we explain the constant variations in intensity following emotional changes ?

It is interesting to remember in this connexion, that some young infants, who never have any signs of respiratory disorder at other times, make a slight crowing noise with inspiration when greatly excited ; and also that when small babies are coming out of chloroform narcosis they not infrequently make a noise for some time, almost exactly the same as that heard in a marked case of infantile spasm.

As to Dr Lees' case, it seems extremely probable that the local condition which he describes and figures may be the *result* of the constant laboured breathing and not the cause of it. That is to say, that it is an analogous deformity to the "pigeon-breast" which had begun to show itself in those of my cases which had suffered for a long time, or to the deformity of the nostrils so often seen in patients with obstruction to the passage of air through the nose.

Before proceeding to consider the nature of this spasmodic muscular contraction, it will be well to contrast its main symptoms briefly with those of laryngismus, with which it is often confounded. There are, of course, many obvious points of resemblance between the two conditions, such as that they are both spasmodic respiratory affections, of central origin, occurring in young children. But when we examine further, we find also very essential differences. In fact, we might almost say that the clinical manifestations of infantile respiratory spasm are scarcely more similar to those of laryngismus than the jerkings of chorea are to the muscular contractions of a regular convulsive seizure.

The comparison of a few points will bring this out. Thus:—

1. *Age of Onset.*—Infantile respiratory spasm begins at birth, or within a week or two of it. Laryngismus probably never begins during the first month, and is almost always confined to the period of the first dentition.

2. *Associated Morbid Conditions.*—In infantile spasm we find no rickets and no other associated conditions, except, perhaps, debility and dyspepsia. Laryngismus is almost always associated with rickets, and has very close connexions with tetany, convulsions, and other nervous symptoms.

3. *Character of the Spasm.*—In infantile spasm, each paroxysm is a very small matter, lasting only a second or perhaps two, and causing no distress or cyanosis; but they accompany (in marked cases) a majority of the child's inspirations for a period of months. In laryngismus, on the other hand, each spasm is comparatively very severe and lasts very much longer. They give rise to great distress and cyanosis, but even in the worst cases they only recur at comparatively long intervals.

4. *Effect of other Conditions on the Spasm.*—Infantile spasm is diminished or quite checked by crying; it is not affected by deglutition; and it is often stopped and never aggravated by sleep; while laryngismus is notoriously apt to be set up and aggravated by crying and swallowing, and is especially apt to come on during sleep.

What, then, is the nature of this spasm, and with what other nervous conditions should we class it?

As to its *nature*, we have evidently to do here with a central functional disorder, consisting in a slight disturbance of the coordination which takes place in ordinary breathing between the thoracic muscles on the one hand, and those of the larynx on the other. This might be supposed to be due possibly to the presence of some central irritation acting more on the adductors than on the abductors; because, according to Semon and Horsley,[1] there are cortical centres for adduction but none for abduction. It might also (and more naturally as it seems to me) be regarded as the result of backward development, and consequent irritable weakness of the central arrangements which control the respiratory movements; just as the tendency to laryngismus in rickety children has been attributed to deficiency of the higher controlling centres (Gay [1]). We would look upon it, therefore, as a "developmental neurosis."

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[1] M'Bride, *Diseases of the Throat, Nose, and Ear*, 1892, p. 193.

As to its *relationship to other nervous diseases*, it seems to be closely allied to the other "co-ordination neuroses." It has, for example, some features in common with writer's cramp and the various trade-spasms, with the spasmodic strictures of the urethra and other passages, which Sir James Paget [2] calls "stammering with other organs than those of speech," and, especially, with ordinary speech-stammering. To speech-stammering it presents many curiously close analogies. In fact, it bears to the function of respiration very much the same relation as stammering does to that of speech; and "respiratory stammering" would probably be the most suitable name for it, if it had not been already applied to a quite different condition.

Stammering is due to a want of perfect co-ordination between the various muscular mechanisms which work together in the production of speech.[3] Like the other "developmental neuroses," it comes on, as Dr Clouston has pointed out,[4] at a period of life when the function affected by it is attaining, but has not yet *quite* reached, perfect development and stability. Congenital stridor is due, as we have seen, to a similar want of co-ordination; and the function affected by it, although in full use, can scarcely be said to have attained *perfect* development, considering the extreme feebleness of the respiratory movements in new-born infants.

It is also interesting to notice the close resemblance which obtains between some of the clinical features of stammering and some of those of infantile spasm. For example, we have the influence of mental emotion in increasing the difficulty in both ailments, and also the fact that a slight degree of stammering or of respiratory spasm is sometimes set up, in healthy individuals of suitable ages, owing to the influence of mental perturbation. Then, again, we notice the temporary relief which energetic use of the voice affords (singing in the one case, and screaming in the other). Lastly, we have the improvement which, in both cases, follows bettering of the general health.

In conclusion, I wish to acknowledge my indebtedness to Dr McBride, who, besides allowing me to make use of one of his cases, and kindly examining most of the infants along with me, has aided me throughout by very helpful suggestions and assistance.

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[1] Gay, "On Laryngismus," *Brain*, Jan. 1890.

[2] Paget, *Clinical Lectures and Essays*, Lect. iii.

[3] Wyllie, "On Disorders of Speech," *Edin. Med. Journ.*, Oct. 1891, p. 291.

[4] Clouston, *Neuroses of Development*, p. 9.

III.—SUMMER STUDIES.—No. III.

By John Boyd, M.D., Slamannan.

From Stockholm we again have received Dr Warfvinge's Annual Report of the year's transactions of the Sabbatsbergs Sjukhus for 1890, and have to acknowledge the obligation conferred by this neat, compact volume, which gives a full account of the 5196 patients treated therein,—the 8·24 percentage of mortality, being 10·24 per cent. in the medical, 5·75 per cent. in the surgical; also an interesting description of the diet regulations, giving a daily average normal portion of 121·8 albuminates, 52·4 fat, and 413 gr. hydrocarbons, the meals arranged in varying cycles of fourteen days; and looking over the *carte*, one could easily imagine worse luck than being dieted in the Sabbatsberg even in high health.

A full account is given of a new operating theatre in the hospital, of the most elaborate, advanced description, resembling strongly that of a similar edifice lately constructed at Berlin.

The main article in this publication is a paper by the editor, on the Results of Treatment with Tuberculin in that Institution, which is most attractive in the trim, cultured Svensk; but a short *résumé* being given in German at the end of the work, of it I will avail myself in view of the condensed summary therein supplied, Koch's new therapeutic agency being still of greatest interest to every member of the profession, whether exalted as at first, or as now in a depressed phase.

Of the seventy-five persons subjected to tuberculin treatment, there are eight more or less suspicious of tuberculosis, placed in the first line for diagnostic purposes, subjected to this treatment. In this respect it appears, from these and previous researches, that this means, as a rule, calls forth the well-known symptoms of general and local reaction; but this effect is not throughout so certain that the indubitable presence of tuberculosis is manifested; while, on the other hand, a powerful general reaction may ensue where no previous indication of the malady existed. While the result of tuberculin injection as a diagnostic is not perfectly certain, we cannot altogether controvert the opinion of the author as to its indicative value. When a local accompanies the general reaction, the probability of the presence of tuberculosis is very great; and when continued reaction remains after the first small dose, one is encouraged not to desist too soon, but rather proceed with stronger doses, as frequently obvious reaction ensues from these last applied.

In four cases the treatment was too short to give a decisive opinion. In the other sixty-three the following results were obtained:—

	Clearly better.	Improved.	No better.	Worse.	Died.
Lung tubercle (with or without larynx tub.)	22	17	9	5	5
Peritoneal tubercle,	1	1	...	...	...
Lupus,	1	...	...	...	...
Pleuritic exudation, with suspicion of tubercle,	...	...	1	...	...
Spondylitis,	...	...	1	...	...
Total,	24	18	11	5	5

Although these results of the tuberculin treatment are quite brilliant, supporting what many expected at first, the author does not hold with those who fear after-consequences of the process. If we cannot speak, perhaps, of perfect cure of the cases adduced, we can state that an obvious improvement has taken place, which is not mainly attributable to any special hygienic conditions to which the patients were subjected during treatment, nor to any other conceivable concomitant circumstances.

The data obtained declare collectively that under certain known conditions tuberculin can claim a distinct therapeutic value. What justifies this claim is chiefly the actual improvement of the general health of the patient, chiefly visible in very many cases, wherein the recoveries of individual symptoms do not merit any particular importance, for, as is well known, that in this point of view great changes take place independently of this treatment; and, on the other hand, incidental symptoms have been shown to recur only too frequently.

As the operation of the method is also not continuous, it is also not constant from great individual differences coming into play. When such undeniably favourable effects are obtained in this class of maladies, especially in cases of lupus, Dr Warfvinge accounts it would be extremely wrong to throw this medicinal agency overboard. Through suitable modifications in the mode of application, it should be aimed at reaching the greatest and most enduring results, without the patient incurring the slightest risk. He also considers it wrong to commence, as has been done and is still doing, with calling forth powerful reaction and necrosis and excretion of the morbid tissues through large, forced doses. Herein lies in front the danger of disseminating the tubercle bacillus over the system, certainly not requisite, with calling forth powerful reaction, coupled with increase of consumption.

From the described cases of lupus, it may be seen, moreover, that entirely without recognisable local or general reaction the healing process continually, though gradually, makes progress, be it from encapsulation of the morbid focus, or that this operates as an emulsion factor, while a general decomposition with reaction of the tuberculous mass goes on. The circumstance that the tuberculin does not kill the bacillus does not indicate the inutility of this agent, as another factor—against which a causal therapia may be directed—the disposition, is not to be overlooked. It is known to all that when small doses of tuberculin are first used and gradually increased, a period soon arrives when under each increased quantity no further reaction ensues, whether from accustoming to the agent or from a certain grade of immunity occurring.

To the author it appears that the ideal course of the tuberculin treatment lies in being as free as possible from reaction. When this is arrived at, and the doses suitably strengthened, there is the best prospect of a favourable result, and the avoidance of the least danger to the patient.

I have always considered that there is a most promising future for the Koch treatment when experience has shown the nature of the cases to which it is applicable and the necessary modifications in the preparation of this remarkable agency, seeing that it is analogous in composition and *rationale* to the anti-cholera vaccination of Dr Jaime Ferrán of Barcelona. Both of these are developments and applications of the biological revelations and revolutions effected by M. Pasteur, foreshadowed by the labours of Spallanzani, whom my friend Professor Orsi may claim among his predecessors of the last century in the University of Pavia.

The marvellous success of Ferrán's treatment in the epidemic of 1885 renders it all the more deplorable that, suppressed by the measures of the Circumlocution Office at Madrid, he was prevented from carrying on his beneficent operations in the epidemic of a year ago. I had hoped that the sarcastic phrase "Cosas de España!" was becoming obsolete.

This last topic leads us naturally to the consideration of some Spanish-American periodicals which have lately called for attention. From that quarter of the world we have been occasionally indebted for useful side-lights and practical hints, as, *e.g.*, I have read an elaborate paper from Chile demonstrating the large amount of ozone in the air of the South Pacific coast and its rarity or absence on the slopes of the Cordillera, accompanied with much prevalence of phthisis in the former and its absence in the latter region—explaining, probably, the frequency of tuberculosis on the western coast of Scotland and its rarity in our elevated moorlands.

From Guadalajara, in Mexico, I read an article by a practitioner in that province, who, when engaged in a case of parturition where the pelvis was somewhat minor justo, and he being far from any colleague's help, availed himself of the *faja* or girdle by which the Southern peasant combines the integuments of his upper and nether man; this wound round his waist, and the ends passed within the angle formed by the crossing of the forceps blades and fastened to the handles, converted the instrument into an improvised Tarnier. The knees, pressed fulcrum-ways against the front of the bed, and the patient in the normal left lateral position, he was enabled to bring all the muscles of the upper extremity and the trunk into simultaneous play. This plan, under similar circumstances, I have tried, and found to answer admirably.

From Havana, in Cuba, are received various numbers of *El Progreso Medico*, edited and owned by Dr Gabriel Casuso; secretary, Dr E. Saladrigas; published at Virtudes 37. I do not suppose they lay claim to the possession of so many virtues between them, although it appears a very spirited publication, well forward on the line of professional and scientific advance, and the moral tone of the communications all that could be desired. Much less can be stated as regards the sanitary condition of the Pearl of the Antilles, according to a paper read to the Academia of that city by Dr Francesco Paradela y Gestal, wherein he makes out that the locality is well fitted for a culture bed for the growth of patients, always provided that the doctor himself survives.

"It is generally admitted that the port of Havana is a permanent focus of infection. . . . The causes of this are attributed to three—slow dragging of the cloacas; the débris of the slaughter-houses, conducted by the canal which terminates at the end of creek of Atarés; and the want of defensive works at one part of the litteral of the port."

The cloacas consist of *rachitic* pipes destined by the Municipal Ordenanzas to receive and carry away rain-water and the residual domestic liquids, but in many cases all sorts of impurities are emptied into them. They lack completely all the elementary conditions to fulfil their object: permeable materials, mortar of absent or doubtful hydraulicity; insufficiency of volume, unsuitable shape; direct and ample communication with the streets; imperfect conjunction with the houses—such is the actual state of things, without exception. From defective levels the matters injected into them, instead of being carried away, remain and rot, spreading their emanations all over the city, and from capillary exudation into the houses, giving rise to typhoid. The natural consequence of all this is that the organic residue carried to the port by these pipes is insignificant. In prolonged, heavy rain-storms it is well known that the water runs through the streets, converting them into rivers, much greater in quantity than what circulates in the cloacas; the solids are deposited, but are covered with a stratum of water which may diminish in great measure their obnoxious influence; they do not seem to affect greatly the health of the 86 labourers employed in clearing away the mud in the vicinity of the military hospital.

When the south wind prevails during the second and third quarter, accompanied by more or less rain, the evil odour that is smelled throughout the city becomes at times insufferable. In the first and fourth—the winter quarters—the stench is less than at the summer season, and is greater during the first hours of the night and the morning than in the rest of the day. The explanation is simply that of draught, consequent on the varying temperatures of the air-currents. After distinguishing between the two groups of morbific exhalations emanating from such conditions—the suddenly pestiferous from the inorganic elements, sulphuretted hydrogen and ammoniacal sulphate, and the slower, less perceptible, but more certainly and extensively lethal from organic fermentations—Dr Paradela went on to notice the mortality in foreign localities resulting from similar hygienic defects, and the large diminution thereof after being properly remedied, showing much erudition, acute reasoning, and command of his subject.

Though at times the temptation to eloquence given by his magnificent native idiom would almost seem to run away with him, a prolonged and instructive discussion followed the reading of this contribution, wherein some of the gentlemen present referred to yellow fever occurring most frequently in sailing vessels lying for weeks attached to the quays, whereas steamers that only remained a few hours, and those vessels anchored out in the bay, were much less subject to this dire disease. This, it was pointed out, originated in those on the shore receiving the breezes from the city, while those in the bay had these mixed with the full Atlantic currents.

The session was wound up by the President, Dr Hortsman, complimenting Dr Paradela, while grieving the inhabitants of Havana by proving that no hygiene existed among them. In ten years England had spent 400 millions of dollars on the sanitation of its territory. A relative expenditure appears to be imperatively required for the capital of Cuba.

At the University of Havana, in the beginning of June last, there took place what would appear to us a mediæval survival, were it not that ecclesiastically we are accustomed to something of the sort in the way of preaching competitions when a minister is required for a vacant parochial charge. The Chair of the Clinic of Children's Diseases was competed for by two rivals—Drs Jover and Dueñas. The former began his prelections before a large assemblage of not only the scientific, but the lay public, with discussing some ten themes, ranging from diagnostics of ectopia renæ and ending with tracheotomy, taking an hour and a half; while Dr Dueñas needed about as much to display his views on the treatment of premature birth, import of skin colouring in newly-born, and so on to the tenth topic, infantile cerebral pneumonia. His modesty before the mixed public prevented his shining so much as his more experienced competitor.

On the 3rd, Dr Jover occupied an hour on the phenomena of tuberculosis, wherein he manifested complete acquaintance with all that is known on the subject in Europe. He was followed by Dr Dueñas, who touched on various points wherein he thought his predecessor had come short; whereafter, in reply, Jover managed ably to hold his own.

On the 6th, Dr Dueñas had the priority, and being less *blate* before so august a tribunal, he expressed himself fluently and freely on the complications of scarlatina, quoting the views of the French

School, showing mastery of the subject, and fixing general attention. In reply, Dr Jover opposed his opinions as regards the nephritic complications, adducing the theories of Traube and Klebs-Löeffler. Dr Dueñas rejoined with considerable vigour and aptitude.

On the 8th, Dr Jover had his innings, wherein he seemed to travel over the physiology and pathology of infants, their deformities, referring almost to every possible ailment in the young. Whatever order was in his 151 "lecciones," Dr Dueñas felicitated himself in having followed it in his programme, which on the 9th he defended, there being twelve propositions for pathology and general clinique, 119 lectures on pathology and special clinique, making altogether a course of 131 lectures. However, Dr Jover argued that his opponent's plan was not so good as his own; he thought 160 lectures were required for the course, and found fault with some of his definitions, rather microscopically.

On the 10th, at the Casa de Beneficencia, the Tribunal was constituted, and Dr Jover was given a case, which he examined deliberately, then gave a clinical lecture thereon, diagnosing infantile syphilis—hereditary. Calomel, from ½ to ¼ cgr. was prescribed, and the child's future could not be more gloomy.

Dr Dueñas' case, gone over with similar care, resolved itself into strumous granulations of the conjunctiva, indicating local application of nitrate of silver and general anti-scrofulous treatment.

A private sitting of the Tribunal was then held, and, while acknowledging the scientific ability of both gentlemen, Dr Jover was appointed to the Chair. *El Progreso Medico* appends its congratulations to both, in which I coincide, with the remark that very few of us Edinburgh men would have liked to have gone through a similar ordeal.

The inevitable article on "El Metodo de Koch," is furnished by Dr Saladrigas, who manifests much learning in the tuberculin administration, and sums up unfavourably as regards pulmonary lesions, but does not advance any new light on the subject.

An important contribution by Dr Nicolas Manzini, on "Tetanus in the Five Towns" (Cinco Villas), merits serious inspection. The author, in the course of some late investigations into the physiology and pathology of Cuban females, their fecundity, and the mortality of their children, found that out of 391 births there were 39 attacks of trismus, all fatal save 1; the proportion 1 to 10·025, or 99·74 per 1000. In Cuba there is one birth for each 28 individuals, the population being 1½ million. There are 52,000 annual births, of which 5·186 are seized by tetanus, and only 1 in 29 of these escape. In the torrid zone parturition is generally easy, and children seldom arrive with parietal hæmatoceles. The rapid change of temperature in sudden births from the maternal to the atmospheric he regards as acting influentially. All the year round tetanus is present in the Cinco Villas, prevailing most in February and July—the extreme months of cold and heat. The current of cold air descending from Guanabacoa on Havana caused a thermometer set at the bodily temperature of 36°·40 to descend in half an hour to 26°·90 on 20th June, when covered with a moist cloth; this removed caused it to ascend quickly to 32°·70, at which it remained, thus showing the sudden changes of temperature to which persons are exposed, acting most forcibly in a state of perspiration. In time of rain the descent is still more marked, the wet bulb on September 5 falling from 28°·5 at 1 A.M. to 22°·7 at 10 P.M. The maximum of the cases of tetanus occur in February. They vary from 60 cases, as in 1847, to 22 in 1850, as is seen in different years' epidemics of typhoid, yellow fever, pneumonia, etc. The author lays stress on temperature influence, and the conclusion of the article cannot fail to have an interesting and important bearing on a malady so frequent in the tropics, but which we see so seldom here, unless at St Kilda.

The editor, Dr Casuso, before sailing for Europe, delivered a farewell address in July last to the Academia de Ciencias Medicas, on Puerperal Septicæmia, which is equally sharp and racy. It appears he had instituted a movement in the Academia to bring its influence to bear on the Corporation for the institution of a "Regla de desinfeccion" to prevent the outbreak of puerperal fever: his efforts had exposed him to various suspicions, and the results were poor; everybody applauded, but nobody took any steps to get the Government to consult with the Junta Superior de Sanidad, so as to make antiseptics obligatory in midwifery. In proof of the necessity of this he quoted two cases, wherein one was dying undelivered of antepartum septicæmia, and the doctor in attendance said that she was foolish, had no labour, and needless alarm. On examination, fœtid pus issued; the fœtus dead, and pains absent. When informed of the imminent danger, the medico was enviably cool and composed, while Dr C. would gladly have scourged him with a whip. The other case was that of a young woman of 21, whose second parturition was easy, but the placenta was left forty-eight hours attached by the specialist in attendance. Temperature, 40°. This was extracted; adhesions numerous. The antiseptic treatment employed was carried out perfunctorily, and a severe attack of septicæmia carried her off on the third day.

Another case was cited of a patient who fourteen days after normal delivery took a moderate hæmorrhage; her doctor took hold of a sponge he found lying about, without inquiring what use it had subserved, and introduced it as a plug. In twenty-four hours she was the victim of severe septicæmia, which continued for ten days without it ever occurring to him to syringe the canal to remove the pestiferous impurity. She was taken to Havana, and Drs Bloda and Jacobsen gave the necessary irrigation; but the uterus required the curette to expel the putrilage seen by Dr Casuso, who was called in consultation. Saved from the septicæmia, the woman suffers from endocarditis septica—an indelible sequela.

From Huber is quoted by Dr Weis in a previous address to the

Academia,—"The day is not far distant when the doctor who loses a patient from puerperal infection will have to answer before the tribunals for his ignorance or his carelessness! . . . Among foreigners there has been more than one demand and more than one trial on account of this. Here, we all know, the same idea has occurred to some discontented husbands, although in general they bear their calamity with sufficient resignation. . . . To infect a parturient is to commit a crime; to leave her to die of infection is a homicide; and we can readily think on the responsibility that devolves on us for this misdoing. In reality this criterion remains reduced at present to our medical conscience; it is necessary to keep in view it passing into that of the legislators in the near future."

An account of two successful ovariotomies, performed by Dr Casuso, is given in his pithy, piquant style, which reminds me much of that of the compositions of one of the ablest surgeons in Europe—Dr Federigo Rubio of Madrid.

IV.—STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY.

III.—General Dropsy of the Fœtus.

By J. W. Ballantyne, M.D., F.R.S.E., F.R.C.P.E., Lecturer on Diseases of Infancy and Childhood, Minto House, and on Midwifery and Diseases of Women, Medical College for Women, Edinburgh; Physician for Diseases of Women and Practical Obstetrics, Western Dispensary, Edinburgh; and Secretary to the Edinburgh Obstetrical Society.

(*Read before the Obstetrical Society of Edinburgh 6th February* 1892.)

(*Continued from page* 160.)

It is now possible to approach the difficult question of the nature and cause of general dropsy of the fœtus with some hope of throwing a little light thereupon, for in the preceding pages have been recorded the facts that have been discovered that bear upon the subject. This disease, however, in common with all fœtal maladies, presents very special difficulties to the investigator, for comparatively little is yet known with regard to the effect of maternal, and to some extent of paternal, morbid states upon the health and development of the fœtus. It is necessary, therefore, in the present state of our knowledge to be content with imperfect and partly theoretical explanations of the pathogenesis and etiology of general dropsy of the fœtus.

Of the writers who have described cases of this disease some have attempted no explanation whatever of its cause; but many have discussed the matter more or less fully, and have suggested solutions of the problem which are more or less probable. Investigators have looked in three directions for the cause of general fœtal dropsy. Some have sought for its origin in some morbid state of the mother's health during pregnancy; others in some pathological condition of the father transmitted to the ovum directly through the spermatozoon at the time of fecundation; and yet others in some purely fœtal disturbance. Several later writers, recognising the difficulty of ascribing the cause either to a maternal or to a fœtal state, have supposed that both the mother and the fœtus must show pathological conditions in order to produce general dropsy in the latter.

Some writers, it has been stated, have attempted no explanation of the origin of general dropsy; but it must also be noted that some have looked closely for a cause and found none. Thus Weber (No. 24), although he was able to exclude inflammatory fœtal processes, could find no anatomical cause for the dropsy; in Burton's cases (No. 31, *a* and *b*), in which the fœtus and placenta were carefully examined by Dr Wilks, no explanation was forthcoming; and in Hönck's first case (No. 54 *a*) the pathogenesis was left quite obscure.

The theories of the writers who looked to maternal conditions alone for an explanation of the disease must now be considered. Seeger (No. 4) would seem to connect the origin of the fœtal state with certain circumstances which occurred near the close of the pregnancy. These were, the mother's fright at the breaking out of fire in a neighbouring house, and the fact that she partook of a copious draught of beer. Billard (No. 15) saw an intimate relation between the strangury and retention of urine in the mother (following a fall) and the dropsy in the fœtus; but he attempted no explanation of the *modus operandi*. Montgomery (No. 21) would seem to hint that the alcoholic habits of the mother had something to do with the production of the fœtal disease. Several older writers (Nos. 5, 6, 13, and 14), noting that the mother of a dropsical infant was also in some instances dropsical, seem to have looked upon the disease as transmitted from the former to the latter. This was a view quite in keeping with the pathology of the time, which looked upon several fœtal diseases—*e.g.*, jaundice, ague, epilepsy, dropsy, etc.—as passing directly from mother to fœtus. Grætzer (No. 18) showed that it was very difficult to accept this theory, by pointing out that many dropsical mothers gave birth to healthy infants, and that dropsical infants were sometimes borne by healthy mothers. The question of the relationship of maternal to fœtal dropsy must, however, be considered again, when the influence of maternal nephritis is under discussion.

Clay (No. 29) opened up the subject of the relationship of the placental condition to the fœtal dropsy. As regarded his first case, he looked upon the anasarca as not due to the state of the placenta (which he regarded as inflammatory), but as produced by the condition of the mother's blood, which in its turn was probably connected with her cachectic state. The anasarca of the fœtus in his second case he ascribed to the hypertrophic character of the placenta; but with regard to both cases he concluded that, although the dropsy arose from different causes, it probably depended upon a poison in the blood of the mother, or upon some other peculiarity in that fluid. Ritter (No. 33) went a stage further, and defined the peculiarity of the maternal blood: he ascribed the fœtal dropsy to hydræmia of the mother. Protheroe Smith (No. 34) found the cause of the maternal albuminuria, anasarca, and jaundice which existed in his case in hyperæmia, and asked whether the same general derangement of the mother might not have been also the causal factor in the production of the fœtal disease. Williams, in the discussion which followed the reading of Bassett's case (No. 37), suggested that the fœtal dropsy might be due to some interference with the renal functions of the placenta which caused the blood of the fœtus to become like that in Bright's disease. Bassett himself looked upon overgrowth of the placenta as the starting-point of departure from health, and upon the dropsy as a sequence to this. Snow Beck (No. 36) suggested as an alternative cause some condition of the mother's health causing defect or deficiency in the blood supplied to the placenta. Ahlfeld (No. 49) seems to have thought that the anæmia of the mother, accompanied by an increase in the number of the white corpuscles in her blood, had something to do with the dropsy of the fœtus. Ruge (No. 51) found no fœtal cause for the dropsy, and was driven to suggest consanguinity of the parents as a possible explanation. Cruveilhier and Simpson (Nos. 16 and 19), although they made no definite statement upon the question, probably regarded maternal syphilis as the cause.

The theory that fœtal dropsy is due solely to maternal nephritis now requires notice. Strauch (No. 45) strongly advocated this view. In his case he was able to exclude syphilis of the parents and leukæmia of the fœtus, and was thrown back upon the nephritis of the mother for an explanation of the general dropsy of the infant. His chain of reasoning was as follows:—The mother had a contracted kidney, and in consequence increased arterial tension and venous stasis. There was, therefore, increased pressure in the maternal portion of the placenta, and an exudation of serum into the intervillous spaces (for he accepted Klebs' theory of the existence of lymph spaces surrounding the villi); this exudation was also predisposed to by the hydræmic character of the maternal blood due to the renal disease; the placenta being the place of least resistance, œdema occurred there, although not in the other maternal organs; and the blood coming from the fœtus in the umbilical arteries met with resistance in the placenta, which caused increased venous pressure and œdema in the fœtus. Strauch also considered that it was probable that the diminished flow of nourishing blood to the fœtus from the placenta, and possibly the transmission to it of hydræmic blood from the mother, might be two further causal influences in the production of the dropsy. Cohn (No. 61), in his paper on the influence of pregnancy-nephritis on the fœtus, reported one case in which a woman gave birth to three dropsical fœtuses in successive gestations; but he did not attempt to explain the connexion between the maternal and fœtal states.

Only one or two writers have sought for an explanation of the origin of fœtal dropsy in paternal morbid states, and they have contented themselves by putting the supposition interrogatively. Thus Seulen (No. 17) asked whether the fact that the father suffered from dropsy, which proved fatal, could be supposed to have caused the dropsy of the infant? and Goldmann (No. 27) put the same question. The case of the brother of the mother of my two specimens may also be quoted in this connexion, for he was the father of a dropsical infant, his wife remaining all the time quite healthy.

A purely fœtal cause was often sought for, but only occasionally found, by investigators. Abnormal conditions of the heart were found in some instances, and were looked upon as causal. Thus, Lawson Tait noted in his specimen (No. 35) the absence of direct communication between the auricles of the heart of the fœtus due to premature closure of the foramen ovale, and to this he ascribed the dropsy of the fœtus and placenta and the hydramnios. The closure was not complete, for there was a crescentic valvular opening, 1-12th of an inch in size. The ductus arteriosus was widely patent. Pott found that the heart of the dropsical fœtus (No. 43) was three chambered (there were two auricles, but the ventricular septum was defective); that there was persistence of the truncus communis arteriosus, and that valvular stenosis of the ostium arteriosum existed. He argued that the stenosis of the ostium arteriosum caused lowering of the arterial pressure in the fœtus, that the heart attempted to overcome this, and that dilatation and hypertrophy of the ventricle and of the right auricle followed, but were insufficient; and that, in consequence of this failure, effusion of serum into the fœtal tissues took place. Congestion and subsequent cirrhosis of the liver were due to the same cause, and led to the fœtal ascites. Osler (No. 60) found a heart condition very similar to that in No. 35. There was a nearly impervious foramen ovale (a valvular orifice 8 millimetres in length existed) and a very large ductus arteriosus. Osler had, however, to confess that the connexion between the dropsy of the fœtus and the heart anomaly was not very clear.

In Behm's case (No. 50) the fœtus showed several malformations besides the dropsy, and amongst these was diaphragmatic hernia. The writer ascribed the dropsy to the hernia, stating that the drag of the viscera in the pleural cavity compressed and obstructed the vena cava inferior.

In Hönck's second specimen (No. 54 *b*) there was cystic degeneration of the fœtal kidneys. There was, therefore, he argued, an almost completely impervious state of the vessels, and this caused great obstruction to the circulation and consequent escape of serum. Large cystic kidneys existed also in Gueniot's specimen (No. 63).

Other conditions obstructing the fœtal circulation were sometimes found. Thus Schütz (No. 39) discovered in the case of a syphilitic fœtus affected with general dropsy that there was arterial sclerosis of the vessels of the subcutaneous tissue, and to a less degree of those of the kidneys and liver. The lumen of the arteries was considerably diminished, and the walls greatly thickened. Raineri (No. 67) considered that the œdema of the fœtus and placenta might not unreasonably be ascribed to the hindrance of the hepatic circulation and the obstruction to the renal secretion caused by the infiltration of these organs with leucocytes. The state of the liver he regarded as closely similar to the congenital interstitial hepatitis of syphilitic infants.

Abnormal conditions of the fœtal blood have been thought by some to be the causes of the general dropsy. In Jakesch's case, investigated by Klebs and Eppinger (Nos. 40 and 41), "a leukæmoid, if not perfectly leukæmic" state of the fœtus was discovered along with thin-walled veins. Klebs stated that since dropsical phenomena were not rarely met with in leukæmia in adults, they might also be looked for in the fœtus, and indeed were more likely to occur in the latter, because of the surrounding liquor amnii, which prevented the giving off water by the skin and lungs. He looked upon the leukæmia and the thin-walled state of the vessels as the causes of the dropsy of the infant. With regard to the placenta, he regarded the chorionic villi as free from the dropsy, which he placed in the so-called intervillous lymph spaces. In order to make this theory tenable, it was necessary to cast aside the generally accepted view of the structure of the placenta, which regarded these spaces as blood sinuses.

The etiological theories of those authors who looked for the cause both in the mother and in the fœtus must now be noted. Virchow (No. 30) worked out very fully the causal factors in his interesting case. The immediate cause of the dropsy he found in narrowing of the pulmonary ostium of the heart, accompanied by cirrhosis of the liver and incipient granular degeneration of the kidneys. The state of the heart he ascribed to fœtal endocarditis; and he was supported in this view by the other signs of inflammatory disturbances present in the fœtus,—these were peritonitis, nephritis, hepatitis, and splenitis. The transposition of the viscera which was found might also be of inflammatory origin. The cause of the fœtal endocarditis in its turn, he thought, might be found in rheumatism or in syphilis of the mother; but he was unable to get information upon this point. The thromboses in the maternal placental sinuses he regarded as a third series of disturbances, which by hindering the circulation in the fœtus tended still further to promote the general dropsy. The primary causes of the fœtal disease were, however, the heart defect and the diseased state of the large abdominal viscera. Virchow adopted, therefore, the theory of a mechanical production of the dropsy. Strauch also, as has been said, emphasized a mechanical mode of origin, but admitted that hydræmia of the mother, and perhaps other things too, might have been causal factors.

Höneck, in his third case (No. 54 *c*), sought for the origin of the fœtal dropsy in the existence of malaria with enlarged spleen in the mother, aided by a transmitted malarial state of the blood of the fœtus. The obstructed maternal circulation led to œdema of the placenta, and this in its turn to obstruction in the fœtal circulation.

Sänger (No. 56), like Klebs, found congenital leukæmia in his specimen. The mother showed signs of nephritis (albuminuria, albuminuric retinitis, etc.), but this he did not regard as the direct cause of the fœtal dropsy; for, as he pointed out, dropsical infants were rarely born to mothers suffering from kidney disease. The nephritis of the mother caused the leukæmia of the fœtus, not in a mechanical way, but the hydræmic state of the maternal blood interfered with the normal formation of the fœtal blood, for it produced a dilution of the fluid passing to the fœtus. The leukæmia thus produced was the cause of the dropsy; for the conversion of leucocytes into erythrocytes having been interfered with, the former accumulated in the fœtal blood, escaped through the thin vessel walls, and formed lymphoid infarcts in the glandular organs, lungs, muscles, and skin; and serum escaping along with the leucocytes, caused œdema of the above-mentioned structures. Sänger considered that a similar transudation of serum took place within the placenta fœtalis, and that fluid passed from the vessels of the villi into the villous connective tissue. He found the blood in the villous vessels leukæmic. He did not, therefore, agree with Klebs, but thought that there was dropsy of both the maternal and fœtal parts of the placenta. Further, he did not accept Klebs' view of the existence of intervillous lymph spaces. Finally, Sänger thought that the leukæmia of the fœtus could not be due to maternal leukæmia, for no leucocytes could pass through the placenta; unfortunately he did not examine the blood of the mother.

The etiology of Lohlein's case (No. 58) was worked out by Fuhr (No. 64), who recognised its complexity, but thought the cause lay chiefly with the mother. He looked upon the spurious diaphragmatic hernia as an effect, not as the cause, of the fœtal dropsy; he excluded from the etiological possibilities the maternal cardiac disorder (mitral insufficiency) because compensation had been established, and the maternal albuminuria because being intermittent it was the sign not of chronic nephritis, but of pregnancy-nephritis predisposed to by the hydramnios and state of the mitral valve; and he assumed, from the existence of spina bifida, that the fœtal dropsy existed before the fourth month of pregnancy, and that the fœtal ascites was prior to the hydrothorax. No microscopical examination of the placenta was made, but Fuhr believed that its large size was due not only to the presence in it of serum, but also to a true hyperplasia of the villi. He looked upon the hyperplasia as primary, and as the cause of the fluid in the fœtus and the hydramnios, whilst to explain the anasarca he deduced fœtal hydræmic plethora from the maternal hydræmia, which in its turn came from the pregnancy and the nephritis. The cause of the hyperplasia in the chorionic villi he found in endometritis of the serotina, and the œdema of the placenta he held to be due to secondary obstruction in the placenta, from the over-filling of the fœtal circulation. The etiological factors he summarized as follows:—(1.) Chorionic maternal endometritis, which probably began in the third puerperium, but was intensified in the sixth pregnancy by the nephritis; (2.) The decidual increase thus induced caused hyperplasia of the chorionic villi and the formation of a large placenta; (3.) Then ensued an excessive absorption of fluid blood into the fœtal circulation (favoured, perhaps, by the hydræmic state of the mother's blood), over-filling of the circulation in the fœtus, with resulting obstruction and œdema, for no hypertrophy of heart and kidneys took place; (4.) The hydramnios in the latter part of the pregnancy was to be referred to increased secretion of the kidneys,—an increase, however, insufficient to compensate for the obstruction; and, (5.) The œdema of the placenta was due to secondary obstruction in the placenta.

In addition to the above-mentioned theories brought forward by writers who have described cases of general dropsy in the human fœtus, there are two observations, one drawn from the field of comparative pathology, and the other from that of experimental teratology, which must not be passed over in silence, for they both (but especially the second) serve to throw some light upon the origin of this fœtal disease. L. Franck (No. 44) found in the case of a dropsical calf—the so-called water- or moon-calf—pathological appearances very similar to those met with in the human fœtus affected with general dropsy; and in addition he noted that there was no trace of thoracic duct, mesenteric lacteals and glands, and of lymphatic glands generally. To the absence of these structures he ascribed the dropsy of the calf. The full value of this observation will be better appreciated when we come to speak of dropsy in the twin fœtus, and to consider the specimen of Smith and Birmingham.

The second observation is one that has been made on many occasions by Dareste (No. 65) when experimenting with the artificial incubation of the hen's egg. Both Tarnier (No. 53) and Taruffi (No. 59) refer to this observation when discussing the causation of fœtal dropsy, and suggest that from it conclusions as to pathogenesis may perhaps be drawn. Dareste has shown that various external conditions interfere with the normal development of the embryo in the hen's egg, and he has been able to produce most of the known fœtal monstrosities by altering the environmental conditions during the process of artificial incubation. By raising or lowering the temperature of the surrounding air, by covering the shell of the egg with varnish, by placing the eggs vertically, etc., he has succeeded in so disturbing the healthy development of the embryo as to lead to the appearance of monstrous forms. One of the most common results of this artificial interference with the growth of the embryo chick has been the production of an anæmia, either simple or complicated with dropsy. Now, this artificially produced dropsical anæmia of the chick may serve to throw some light upon the origin of general dropsy of the human fœtus which we have seen to be often associated with anæmia. Dareste has found that it is produced in the following manner. One of the earliest changes in the impregnated ovum of the hen is the formation of the vascular area; this surrounds the embryo, and in it is found a network of bloodvessels surrounded by a circular vein. The network of vessels is formed by the projection and anastomosis of offshoots from the blood-islands which are found in the vascular area, and ultimately the network thus produced is brought into relation with the heart through the omphalo-mesenteric veins and arteries. If this communication be not effected, the blood in the heart and vessels remains colourless, and contains no globules—it is a colourless plasma. Now, Dareste found that by altering the normal external conditions in artificial incubation the "islands of blood" could be arrested in their development and the canalization of the vascular area prevented. As a result, the blood globules remained stored up in the blood-islands and did not reach the cavity of the heart. In such a case the blood sent by the heart through the body of the embryo remained colourless and transparent, and the organs and tissues with which it came in contact became dropsical, probably on account of the absence of albumen from the circulating fluid. Dareste also noted that the fluid not only lay between and within the mesodermic cells, but might accumulate in the pleuro-peritoneal sac, in the cerebro-spinal canal, and in the amniotic cavity. This condition was always found to be produced at a very early period in the development of the embryo. When the dropsical anæmia was complete it brought about the death of the chick, but when incomplete it caused various malformations, such as spina bifida, anencephaly, etc.

It is now possible to group together in a provisional manner the probable causes of general fœtal dropsy, although it cannot, of course, be affirmed that each group is distinct from and independent of the others. No doubt they overlap to a considerable extent, and may possibly all be present as etiological factors in some cases.

I. It is within the limits of possibility that there may be a group of cases in which the primary pathological impulse comes from the father, and is impressed upon the ovum by the spermatozoon at the time of fertilization. It must be admitted that little is definitely known of the influence of paternal conditions upon the embryo; but still it is not to be denied that the only rational explanation of certain cases of fœtal disease and of the transmission of some physiological and pathological peculiarities is to be found in the existence of such influences in the spermatozoa. Some cases of hereditary syphilis, and some of transmitted structural anomalies affecting only the males, may be cited as examples. No one has yet affirmed that in general fœtal dropsy the cause lay with the father; but two or three writers have put the matter interrogatively, and in connexion with my own cases it is a striking fact that a sister and a brother, both markedly anæmic, should have in the one case borne and in the other begotten a dropsical infant. It rests with future observers to scrutinize this possible group of factors, and to eliminate it from or establish it in the etiology of the disease.

II. In a second group of cases it may with some confidence be affirmed that the cause of the dropsy is to be found in a lesion of the fœtus itself. When general dropsy in the twin fœtus comes to be considered, it will be seen that in nearly every recorded case an adequate fœtal cause has been discovered; but this is not so with regard to general œdema of the single infant, for although most writers state that they sought for a fœtal cause, they have in many cases to confess that the search was without result. As was to be expected, the attention of observers has been turned chiefly to the state of the fœtal heart and kidneys.

In three cases (Nos. 35, 43, and 60) cardiac malformations were regarded as the direct cause of the general dropsy, and in two (Nos. 35 and 60) the malformation consisted in nearly complete closure of the foramen ovale with a widely patent condition of the ductus arteriosus. In my first specimen the section unfortunately passed through the foramen ovale, but in my second the foramen was seen to be less patent than it ought to be at the term of intra-uterine life which had been reached, and in both cases the ductus arteriosus was widely patent. If the course of the fœtal circulation be borne in mind, it is possible to construct a theory which will attribute the dropsy of the fœtus and placenta to the above-named anomaly. It is necessary to grant that the passage of the blood (arriving in the right auricle from the inferior vena cava) through the foramen ovale is greatly impeded by the almost complete closure of that opening. In such a state of matters the blood will tend to pass through the tricuspid opening into the right ventricle, but its progress will be impeded by the Eustachian valve, and so the blood-pressure in the right auricle will rise. This effect will be intensified by the arrival in the same chamber of the blood from the vena cava superior. The consequence of this will be a rise in pressure in all the parts from which the vena cava comes (the whole body and placenta), and, adopting the theory of the mechanical origin of dropsy, there will result serous effusion, affecting first the placenta, which is the extreme limit of the circulatory system of the fœtus, and later the whole body of the infant. If, as has in some cases been found, the vessel walls be thin, the escape of serum will be rendered the more easy on that account. This theory explains also the dilatation of the ductus arteriosus, for through it the greater part of the blood must pass into the aorta. In a somewhat similar way the general dropsy in Pott's case (No. 43) may be explained. Here the stenosis of the ostium arteriosum of the three-chambered heart probably led to obstruction in the venous system, and, since hypertrophy of the right auricle and of the single ventricle did not occur, effusion of serum followed; the cirrhotic condition of the liver caused by the congestion explained the ascites. If it be granted that in some cases of general dropsy the above-named mechanical theory is the correct one, still the cause of the heart lesion is left obscure, and it can only be surmised that it may have been due to localized endocarditis of unknown origin. In Virchow's case (No. 30) there is ground for supposing that the cardiac anomalies were due to fœtal endocarditis, for there were other inflammatory states present, *e.g.*, peritonitis. The narrowing of the pulmonary ostium, the hepatic cirrhosis, and the incipient granular renal degeneration, were regarded by this writer as the immediate cause of the dropsy. Virchow, therefore, like Tait, Osler, and Pott, adopted the mechanical theory of origin; but, unlike them, he recognised that some maternal influence (rheumatism or syphilis) must be invoked to explain the fœtal inflammatory states.

Other writers have ascribed the dropsy to an obstruction in the circulatory system outside the heart. Behm's supposition that the diaphragmatic hernia compressed the inferior, and to some extent also the superior vena cava, and so led to general dropsy, whilst it may have held for his case, must be looked upon as one of the rarest of all causes. Obstruction to the blood-flow through the kidneys from cystic degeneration of these organs (Nos. 54 *b* and 63) can scarcely be regarded as a sufficient cause of general dropsy, for cases of cystic kidney in the fœtus in which there was no dropsy have not infrequently been recorded. If, however, this cause be accepted, it would seem more rational to ascribe the dropsy to the pressure exerted by the large renal tumour upon the vena cava inferior or upon some other large vessel. The obstruction caused by the infiltration of liver and kidneys with leucocytes (No. 67) is another theory of origin which it is very difficult to accept as a complete explanation of the disease, for the effects appear so much greater than the cause.

The question of the relationship of syphilis to this disease will be discussed later; and with regard to the theory of the lukæmoid origin of the dropsy, that matter will more conveniently be considered along with the alleged combined maternal and fœtal causes. In the meantime it may be granted as probable that in some cases the fœtal dropsy is due to fœtal causes leading to obstruction of the circulation either in the heart or in the large vessels, the dropsy in these specimens being regarded, therefore, as mechanical in origin, an œdema of engorgement. This view receives some support from the fact, that in the cases in which a sufficient fœtal cause was found, there was, as a rule, no distinct maternal lesion.

III. It is doubtful whether there are any cases of general fœtal dropsy which can be referred to a maternal cause alone. The older theories (Nos. 4, 15, and 21) may be dismissed as most unlikely explanations, and so may some of the modern ones, *e.g.*, Ruge's (No. 51). The only maternal conditions that require serious consideration are diseased states of the kidneys and of the blood. At first sight there appears to be much in favour of the theory that a maternal disease alone may cause the fœtal dropsy, for the mother of such a fœtus is, in the majority of the reported cases, an elderly multipara who has suffered in various ways during pregnancy (from dropsy, albuminuria, hepatic and gastric disorders, etc.), and has had a bad previous obstetric history. Further, in some cases (Nos. 31, 51, 61, and 66) the same mother has borne two or more dropsical infants in succession. When, however, the clinical facts in the mother's history are closely examined, they are found capable of bearing another explanation, for most of them are quite as likely to be consequences of the fœtal state as causes of that condition. The anasarca, the gastric and hepatic troubles, and the albuminuria, can all be reasonably explained by the pressure upon vessels and viscera produced by the over-distended state of the uterus, which is in its turn due to the large size of the fœtus and placenta, and to that frequent concomitant of the disease, hydramnios. Further, the rapid disappearance of these abnormal symptoms which usually immediately follows the birth of the infant also supports the belief that these symptoms were effects and not causes of the fœtal disease. One is therefore warranted in concluding that in most cases the albuminuria, when it did exist, was due to a pregnancy-nephritis, and not to a permanently diseased state of the mother's kidneys.

Strauch's case (No. 45) appears to militate against the acceptance of the above statements. The patient, in this instance, seems to have had true granular atrophy of the kidneys, and the author argues that this increased the blood-pressure in the mother, that serous exudation into the maternal portion of the placenta followed, and that in consequence of this there was an obstructed flow of blood through the fœtal part of the afterbirth, and general dropsy of the fœtus. Against this view it has to be remarked that œdema of the maternal part of the placenta is hypothetical, for Strauch did not examine it microscopically, and that in the cases in which the placenta has been investigated in this way the dropsy was found to affect the fœtal part (the chorionic villi) and not the maternal. Further, it is well known that whilst mothers with kidney disease are not uncommon, it is very rare for them to give birth to dropsical infants. The maternal disease has an unfavourable effect upon the infant, for it is often born prematurely (dead and macerated, or alive, feeble, and poorly nourished); but it is quite exceptional for it to be the subject of general dropsy. I had an opportunity recently of examining such a case; the fœtus was still-born and premature, but showed no effusions, and its kidneys exhibited no morbid conditions when viewed under the microscope. Even Strauch, who is the strongest advocate of the theory of the origin of fœtal dropsy from maternal renal disease, is forced to admit that his supposition does not explain all the facts of the case, and that it may be necessary to grant the co-existence of fœtal hydræmia and possibly of other causal factors.

The writers (Nos. 29, 33, 34, and 49) who have looked upon a diseased state of the mother's blood as the sole cause of the fœtal disease do not attempt to explain the *modus operandi*, and those who have supposed that the dropsy had its origin in disease of the maternal placenta alone have not made a microscopical examination of that structure; there is no necessity, therefore, to refer further to these states, at any rate as sole factors, of the disease of the fœtus.

IV. In a fourth group may be placed the cases which appear to be due to combined maternal and fœtal morbid states, and in the present condition of our knowledge it would seem that here are to be placed most of the specimens of general dropsy of the single fœtus. Several recent writers have taken this view of the case, for it has been found to be almost impossible to discover either in the mother alone or in the fœtus alone a sufficient and satisfactory cause of the dropsy.

It is fair to surmise that in most cases the mother of a dropsical infant has been far from perfectly healthy herself: it is distinctly stated in certain instances that she was anæmic, hydræmic, icteric, or affected with albuminuria, malaria, valvular disease, rheumatism, or syphilis, and in many of the cases in which no such morbid states are mentioned it may be inferred from the clinical history that she was below par, and probably was anæmic to a greater or less degree. Moreover, there is reason to believe that in but few cases was the uterine mucous membrane quite normal, for the history of repeated premature labours or of miscarriages is often forthcoming, and suggests a chronic endometritis that has interfered with the normal formation and functional activity of the maternal part of the placenta. In one case (No. 64) chronic endometritis of the serotina was looked upon by the writer as the cause of hyperplasia of the chorionic villi; but it is unfortunate that in this instance a microscopic examination of the placenta was not made. There are then two possible etiological factors on the part of the mother: these are—the circulation of a vitiated blood in the maternal portion of the placenta, and the abnormal formation of that structure on account of a diseased state of the serotina consequent upon chronic endometritis.

It is possible to suppose that the structural change in the maternal part of the placenta might be so great as to cause obstruction to the circulation in the fœtal part, and so lead to dropsy of it and of the fœtus; but in the absence of direct proof from microscopic examination this hypothesis must be looked upon as very doubtful. It is more likely that the maternal morbid states above named act in a bio-chemical way upon the fœtus, inducing in it diseased processes which are the causes of the dropsy. These processes we may suppose to be due to the fact that an impure or insufficiently nourishing blood is supplied to the fœtus, or that through interference with the excretory functions of the placenta, a hydræmic or otherwise abnormal condition of the fœtal blood is set up and maintained. Virchow (No. 30), for instance, thought that in some obscure way rheumatism or syphilis in the mother set up various inflammatory states in the fœtus, amongst which was endocarditis, which led to a cardiac anomaly which in a mechanical way caused the dropsy. This explanation may prove to be correct in some cases; but it seems more probable that the fœtal change induced is a blood one, and that it produces the dropsy in a chemical rather than in a mechanical way—that, in fact, the dropsy is cachectic and not congestive or inflammatory in origin. What is the usual nature of the cachectic state of the fœtal blood must for the present be doubtful; it is possible that it may be hydræmic or anæmic, or, as in the cases of Klebs and Sänger, leukæmic. If it be granted that fœtal leukæmia exists and is the cause of fœtal dropsy, it is necessary also to grant that it differs in many respects, but chiefly in degree, from that disease as it is found in adults. Sänger noted with regard to his specimen that the leukæmia must have developed very rapidly, for the appearances found were like those of the most advanced stage in the adult. This fact may serve to explain why it is that general dropsy is only occasionally met with when leukæmia affects the grown-up individual.

As evidence in support of the cachectic origin of fœtal dropsy, I may adduce the results of the analysis of the ascitic fluid in my second case (No. 66 *b*). It will be remembered that the proportion of proteids was exceedingly small, and if we accept Runeberg's statement that ·3 per cent. albumen and below it always indicates hydræmic ascites,[1] it may therefore be concluded that in this case, at any rate, there was a blood dropsy. The thin-walled state of the bloodvessels which has been observed may still further have favoured the occurrence of dropsy. Dareste's experiments seem also to support this view, although it is perhaps scarcely permissible to draw deductions concerning the mammalian fœtus from what happens in the case of the chick. It may, however, be borne in mind that the artificially produced dropsy in Dareste's cases was an anæmic one.

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[1] *Deut. Arch. für Klin. Med.*, xxxiv. p. 1, 1883.

CONCLUSION.

It may then be said, that whilst in some cases of fœtal dropsy there existed an adequate cause in the fœtus itself, in most instances the disease was due to a chain of factors, having a cachectic state of the mother at one end and a blood disease of the fœtus at the other, with a morbid state of the uterine mucosa and placenta intervening.

LITERATURE.

1. HIPPOCRATES.—*Epidemics*, Book II., section ii. par. 19. B.C. 468.
2. PLATER (F.)—*Observationum*, lib. iii. p. 748. Basileæ, 1614.
3. SEVERIN (M. A.)—*De recondita Abscessum natura*, lib. iv. cap. 36. p. 266. Francofurt, 1643.
4. SEEGER (G.)—*Miscellanea curiosa medico-physica Academiæ naturæ curiosorum*, Dec. I., Ann. I., Obs. 42, p. 132. Lipsiæ, 1670.
5. DORSTENIUS (J. D.)—*Miscellanea curiosa sive Ephemeridum*, Dec. II., Ann. iii., Obs. 153, p. 298. Norimbergæ, 1685.
6. DUETTEL (P. J.)—*De morbis fœtuum in utero materno*, p. 8. Halæ Magdeburgicæ, 1702.
7. LOSPICHLERUS (J. A.)—*Acad. Cæsareo-Leopoldinæ Naturæ curiosorum Ephemerides*, Cent. I. and II., Obs. 150, p. 313. Francofurti et Lipsiæ, 1712.
8. DE LA MOTTE (G. M.)—*Traité complet des Acouchemens*, liv. iv. chap. xi., Observ. 336, p. 497. Leiden, 1729.
9. SCHURIG (M.)—*Embryologia historico-medica*, Sect. iii. cap. i. p. 203. Dresdæ et Lipsiæ, 1732.
10. OSIANDER (F. B.)—*Götting. gel. Anzeigen*, Bd. I., p. 243. 1810.
11. CARUS (C. G.)—*Zur Lehre von Schwangerschaft und Geburt*, Abth. I., p. 152. Leipzig, 1822.
12. LAMOUROUX.—*Bulletin d el'Athenée de Médecine de Paris.* Avril, 1825.
13. MEISSNER (F. L.)—*Forschungen des* 19 *ten Jahrhunderts, etc.*, vol. iv. p. 133. Leipzig, 1833.
14. OLIVIER.—*Propagateur*, 1825, cited by Hufeland (C. W.), *Journal der practischen Heilkunde*, Bd. 64, pt. i. p. 25. Berlin, 1827.
15. BILLARD (C.)—*Traité des Maladies des Enfans*, p. 451. Paris, 1828.

16. Cruveilhier (J.)—*Anatomie Pathologique*, tom. i., livr. 15, plate ii. Paris, 1829.
17. Seulen.—*Neue Zeitschrift für Geburtskunde*, vol. ii. p. 17. 1835.
18. Grætzer (J.)—*Die Krankheiten des Fœtus*, p. 112. Breslau, 1837.
19. Simpson (J. Y.)—Case No. 6 in paper in *Edinburgh Med. and Surg. Journal*, vol. l., p. 390. 1838.
20. West (C.)—*London Medical Gazette*, p. 716. 1839.
21. Montgomery (W. F.)—Todds' *Cyclop. of Anat. and Physiol.* vol. ii., article "Fœtus," p. 332. 1839.
22. Channing (W.)—"Dropsy of the Fœtus; Congenital Hydrocephalus, Ascytes, and Anasarca," *New England Quart. Journal, Med. and Surg.*, i. p. 321. Boston, 1842-3.
23. Hohl (A. F.)—*Die Geburten missgestalteter, kranker, und todter Kinder*, p. 309. Halle, 1850.
24. Weber (F.)—*Beiträge zur path. Anatomie der Neugeborenen.* Kiel, 1851.
25. Ferris (E. H.)—*West. Lancet*, vol. xv. p. 18. Cincinnati, 1854.
26. Thomas (W.)—"On a Case of Congenital Dropsy, Vesicular and Anasarcous," *Lancet*, 1856, vol. ii. p. 303.
27. Goldmann (S.)—*De vi quam fœtus hydrope anasarea affectus, etc.*, Diss. Inaug. Viadrina, Vratislaviæ, 1857.
28. Walker (W.)—"Serous Effusions in a Fœtus," *Brit. Med. Journal*, p. 9. 1858.
29. Clay (J.)—"Ueber Anasarca des Fötus," *Zeitschrift der Kaiserl. Königl. Gesellschaft der Aerzte zu Wien*, p. 200. 1859.
30. Virchow (R.)—"Ein Fall von Transposition der Eingeweide und ausgedehnten Localerkrankungen beim Neugebornen," *Archiv für path. Anat. und Physiol.*, Bd. xxii. p. 426. 1861.
31. Burton (J. M.)—*British Medical Journal*, vol. ii. p. 530, 1861, and vol. i. p. 454, 1863.
32. Joulin (D.)—*Des Cas de Dystocie appartenant au Fœtus*, p. 25. Paris, 1863.
33. Ritter (B.)—"Hydramnios mit Hydropsie und Maceration des Fötus," *Wurtemberg. med. Corrispondenzbl.*, No. 6, 1869.
34. Smith (Protheroe)—*London Obstet. Soc. Trans.*, vol. xvii. p. 303. 1876.
35. Tait (Lawson).—*London Obstet. Soc. Trans.*, vol. xvii. p. 307. 1876.
36. Beck (Snow).—*London Obstet. Soc. Trans.*, vol. xvii. p. 310. 1876.
37. Bassett (J.)—*London Obstet. Soc. Trans.*, vol. xix. p. 261. 1878.
38. Herrgott (A.)—*Maladies fœtales qui peuvent faire obstacle à l'accouchement.* Thesis, p. 249. Paris, 1878
39. Schutz (E.)—*Prag. med. Wochenschr.*, Nos. 45 and 46. 1878.
40. Jackesch (W.)—*Centralbl. für Gynäkologie*, Bd. ii. p. 619. 1878.

41. Klebs.—*Prag. med. Wochenschr.*, Nos. 49 to 52. 1878.
42. Macdonald (A.)—*Edinburgh Med. Journal*, vol. xxiv. p. 838. 1878.
43. Pott (R.)—"Ein Beitrag zu den Bildungsfehlern und fœtalen Erkrankungen des Herzens," *Jahrb. für Kinderheilkunde*, Bd. 13, p. 11. Leipzig, 1879.
44. Franck (L.)—"Zur Kenntniss der sogenannten Wasserkälber," *Deutsche Zeitschrift für Thiermedicin*, vol. v. p. 82. Leipzig, 1879.
45. Strauch (H.)—*Ueber fötalen Hydrops universalis.* Inaug. Dissertation. Berlin, 1880.
46. Simpson (A. R.)—*Edinburgh Med. Journal*, vol. xxvi. p. 164. 1880.
47. Habit.—*Allgem. Wien Med. Zeitung*, xxv. p. 42. 1880.
48. Braun (C.)—*Lehrb. der Gesammt. Gynækologie*, p. 578. 1881.
49. Ahlfeld (F.)—*Berichte und Arbeiten aus dem geburt-gyn. Klin. zu Giessen.* 1881-2.
50. Behm (C.)—*Zeitschrift für Geburt. und Gyn.*, Bd. ix. p. 197. 1883.
51. Ruge (P.)—*Zeitschrift für Geburt. und Gyn.*, Bd. xiv. p. 208.
52. Chiara (D.)—*Un Caso di anasarca del feto complicante il parto, Riforma Medica*, pp. 102 and 103. 1886.
53. Tarnier (S.) and Budin (P.)—*Traité de l'art des Accouchements*, vol. ii. p. 352. 1886.
54. Hönck (E.)—*Drei Fälle von allgemeinem fötalem Hydrops.* Inaug. Dissertation. Kiel, 1887.
55. Ballantyne (J. W.)—*Edinburgh Obstet. Soc. Trans.*, vol. xii. p. 161. 1887.
56. Sänger (M.)—*Archiv für Gynäkologie*, vol. xxxiii. p. 198. 1888.
57. Pinzani (E.)—"Considerazioni sopra un caso clinico di strana fragilità fetale," *Bullettino delle Scienze Mediche di Bologna*, vol. xxiv. pp. 5–23. 1889.
58. Lohlein (H.)—*Ueber Dystokie in Folge fötaler Hydropsie, Soc. Med., Giessen, Nov.* 12, 1889.
59. Taruffi (C.)—*Storia della Teratologia*, P. I., tomo v. p. 327. 1889.
60. Osler (W.)—"Congenital Affections of the Heart," Keatings' *Cyclop. of Diseases of Children*, vol. ii. p 752. 1889.
61. Cohn (E.)—"Ueber das Absterben des Fötus bei Nephritis der Mutter," *Zeitschrift für Geb. und Gyn.*, Bd. xiv. p. 587.
62. Longaker.—"Case of Diseased Placenta, Anasarca of Fœtus and Hydramnion," *American Journal of Obstetrics*, vol. xxii. p. 639. 1889.
63. Gueniot.—"Dégénérescence Kystique des reins chez un fœtus hydropique," *Archives de Tocologie*, vol. xvii. p. 617. 1890.
64. Fuhr (O.)—*Ein Fall von Anasarca des Fötus als Geburtshindernis.* Inaug. Dissertation. Giessen, 1891.

65. Dareste (C.)—*La Production artificielle des Monstruosités*, p. 301, second edition. Paris, 1891.
66. Ballantyne (J. W.)—*Edinburgh Medical Journal*, vol. xxxviii. p. 57, 1892.
67. Raineri (G.)—"Parto dystocico da feto generalmente edematoso," *Gazzetta Medica di Torino*, No. 2, p. 21. 1892.
68. Betschler (J. W.)—"Zur Dystokie e fœtus hydrope anasarca gelatinoso," (first case), *Klin. Beitræge für Gynæk.*, Bd. i. p. 260. Breslau, 1862.
69. Mattersdorf (G.)—*Allgemeines Oedem der Frucht und der Placenta.* Inaug. Dissertation. Breslau, 1891.

V.—CHLOROFORM ADMINISTRATION.

By David W. Aitken, M.B., C.M.

During the recent vigorous discussion on chloroform administration, little or no reference was made to two points which appear to me cardinal principles. These are—

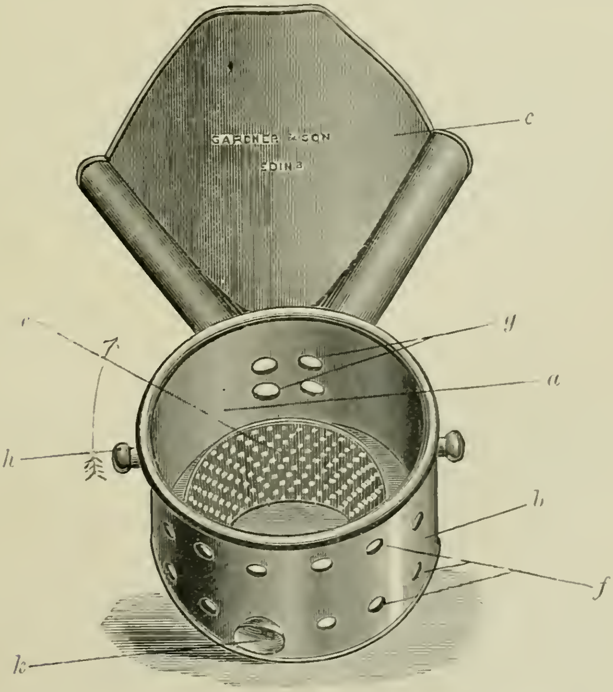
1. The peculiar sensitiveness of the puerperal woman to the drug.

2. That there must be for every person, idiosyncratic or not, a minimum dose, which, if not exceeded, is absolutely safe.

In respect to the first statement, it is to be noted that the sensitiveness is twofold:—(*a.*) Only a very small quantity of chloroform is needed to produce narcosis. (*b.*) It is not necessary, in order to abolish pain, to produce completely unconsciousness; but further pain is speedily allayed if the inhalation be given at the right moment, *i.e.*, at the very commencement of a uterine contraction. With our present means we have great difficulty in achieving our purpose; for just as the pain comes on we have to fumble with a bottle, and before we have the chloroform applied the pain is either far advanced or gone. Hence the frequent resort to complete narcosis, which I maintain is quite unnecessary, since we know that a woman can be at the same time rendered free from painful sensations and able to converse. As regards the second point, it seems to me that obvious as it is, we almost universally violate the principle involved, with the sad results the journals are constantly recording.

It may be asked quite justly, How can we know, with our usual apparatus, when we have *exactly* reached the minimum and safe dose? The answer may be decidedly given, *We cannot know!* It is in my experience that a patient, to whom the administration was made with a mask, vomited a considerable quantity of chloroform beyond that necessary to produce complete narcosis. Besides, it may be accepted that if a towel be used, so free will be the supply of chloroform in a given time, that at the moment complete narcosis is induced there still remains some of the drug yet to take effect in the system. In my opinion the only safe method is to give drop by drop, and so one can be quite sure of the moment of narcosis, or at any rate feel confident that he has no unknown quantity to reckon with. It may be objected that this method of drop doses takes a long time. But we must always realize that of the two parts of an operation the chloroform administration is in most cases by far the more important; as Mr Chiene has wisely and well said, "We are gradually advancing to the death-point." No operator that I know of ever refuses to take time to the cutting part, however much demand of time and patience is made upon him. Again, my experience is that the slow method requires much less chloroform, and the after-effect is much better. For example, I assisted my friend Dr Lundie at a long and tedious operation, but after a time the patient seemed to be actually asleep, and the cutting went on for a considerable period without any inhalation. On another occasion I succeeded in producing narcosis for about one hour with half an ounce of chloroform.

In order to carry into practice the matters I have laid stress upon, I have devised the instrument of which the accompanying woodcut



gives a fair idea. It consists essentially of a box with inner and outer cylindrical casings. The outer cylinder (*b*) is perforated for the nose and mouth-piece (*c*), for the air-holes (*f*), for the filling funnel (*k*), and for the slot (*h*). The inner cylinder (*a*) is perforated by the breathing-holes (*f* and *g*), and revolves inside *b* in such a manner that the holes in *a* and *b* are open, and shut simultaneously. Further, some of the perforations open directly into the general cavity, while most of them communicate with it only through the sponge cavity. The slot (*h*) controls the revolution so as to secure this; *e* is a sheet of perforated zinc cutting off a compartment for the sponge, *k* is a small funnel into which chloroform can be dropped through a hole in the cylinders into the sponge cavity. The instrument is fitted with a lid, which by mistake is not shown in the drawing. By moving the knob (*h*) in the direction of the arrow, all the holes will be closed.

Now, in obstetric practice the sponge can be well soaked with chloroform, and intrusted either to the nurse or the patient herself, with the instruction to keep the inhaler closed during the intervals; but as soon as there is any indication of pain, the knob is to be pushed back, thus opening the holes, and the apparatus applied, but to be at once removed on the cessation of the contraction, and the holes closed. With this contrivance we are at once ready at the required moment, and it is also quite safe. But though the inhaler is chiefly intended to meet the requirements of midwifery, it is my hope that it may be adopted in general practice. First, it seems well adapted for the slow method, as it permits almost no chloroform to be dissipated. Second, it can be applied and removed at any moment. Third, it permits of a free dilution from the large number of perforations. Lastly, it saves an enormous quantity of chloroform, which is in the ordinary method wasted. For the drawing I am indebted to Mr Kerr, artist.

VI.—A SERIES OF ABDOMINAL SECTIONS.

By N. T. BREWIS, M.B., F.R.C.P.E., Lecturer on Gynæcology, Edinburgh Medical School; Gynæcologist, New Town Dispensary; Secretary, Edinburgh Obstetrical Society; formerly Assistant to late Physician for Diseases of Women, Edinburgh Royal Infirmary.

(*Read before the Edinburgh Obstetrical Society*, 11*th May* 1892.)

IN this series I propose to record the last thirty abdominal sections that I have performed. The list includes, with one exception, every case in which I have opened the abdomen during the last two years. The case which I leave out was a patient of Dr Allan's of Falkirk, and was recommended to me by Dr Joseph Bell. She had an ovarian tumour, which burst some months before I saw her; and when the abdomen was opened, the intestines, mesentery, and omentum were found studded over with innumerable hard nodules of a malignant nature, ranging in size from a pea to a child's head, and immovably fixing the large and small bowel. Removal of the affected parts was out of the question, and after evacuating the fluid, which was colloid and ropy, the wound was closed. The patient died about a fortnight afterwards of intestinal obstruction. As the operation in this case was little more than a tapping, I think I am entitled to exclude it from the present series.

I give my last thirty cases because they illustrate my more recent work, and because they show an improvement on those which preceded them. In the series there was no selection of cases made. Where operative interference was necessary, I excluded none, however difficult, and left none unfinished. There have been no deaths from ovariotomy or removal of diseased appendages, and there were twenty-five consecutive cases of abdominal section for various conditions without a death.

This improvement I attribute in the most part to increased experience, and in a great extent to altered technique. My recent operations have not been less difficult than my earlier ones. A number of them have been of the most serious kind, but experience has taught me to tackle them more successfully. In my earlier cases I used antiseptics in the abdominal cavity, I didn't irrigate, and I seldom drained. In the later cases I have used no antiseptic in the abdomen, and have irrigated and drained frequently. I was led to give up antiseptics in the peritoneal cavity from having had a case in which the patient suffered from distinct carbolic acid poisoning, and with the abandonment of antiseptics irrigation naturally took its place. The non-use of antiseptics internally has resulted in marked improvement in the recovery of the cases. Its use was frequently followed by considerable constitutional disturbance. High temperatures, which made me anxious, were common. Severe headache and stupor lasting for days were often complained of, and were erroneously attributed to the anæsthetic employed. Since plain hot water was substituted for carbolic acid, the recoveries have been uneventful in nearly every case. There has been a complete absence of constitutional disturbance and of nervous symptoms. The temperature in the last thirty cases has seldom reached 100°. Although I have given up antiseptics internally, I may state that all preparatory measures are carried out with full antiseptic precautions. I irrigate the peritoneal cavity with hot water whenever there has been the least soiling of the peritoneum, and when many adhesions have been separated. When pus or much blood has touched the peritoneum flushing is undoubtedly called for; but it is also necessary in every case where the fluid of a cyst has come in contact with the peritoneum, because we do not know when it contains malignant elements and when it does not. I have seen malignant thickening of the wound cicatrix and of the peritoneum occur a year after an apparently simple ovarian cyst had been removed, and have no doubt that the fluid infected the surface from having been brought in contact with it during the operation. This result might have been averted by flushing. Irrigation cleanses the surface, clears away all clots and particles, and thus relieves the peritoneum of resorption, and thereby prevents constitutional disturbance.

Drainage like flushing relieves the peritoneum of the work of resorption, and by so doing prevents septic peritonitis and muscular paralysis of the bowel. The peritoneum is a very absorbent structure, but we never know the extent of its absorptive power. Doubtless in strong healthy women the power is great; but in the weak and elderly it is not so, and in them it is well not to trust to the peritoneum. As fluids in the peritoneal cavity sometimes become septic, their removal by the drainage-tube is desirable. I believe that the drainage-tube, instead of being a means of introducing sepsis into the peritoneal cavity, is a most valuable preventive of it. That blood in considerable quantity left in the peritoneum does not always decompose, I know from the fact that in more than one of my more severe cases, in which there were numerous adhesions, a hæmatocele formed behind the uterus, and after two or three weeks became absorbed. It is also to be remembered that fluids in the abdomen may act as irritants to the intestine, and produce paralysis of it, with symptoms of obstruction. I use the drainage-tube in every case in which the sponges do not come up dry. It enables us to finish the operation quickly, to watch the after-progress of the case, and to adopt prompt measures where there is anything wrong. I now propose to make a few remarks on some clinical experiences which the following cases bring to my mind.

Diseased Appendages.—Sixteen of the cases were examples of the above, and all recovered; these operations were undertaken to remove pain, and in some instances hæmorrhage as well. I consider abdominal section justifiable, and recommend it—

First, When the patient has been sterile for some time, and when pain sufficiently severe to prevent her from enjoying life or attending to her household duties has existed for a considerable period, and when after palliative treatment of some months' duration the symptoms are not relieved, and the appendages remain tender on palpation.

In these cases one is perfectly justified in opening the abdomen to find out the exact condition of the appendages, and to remove the parts, break down adhesions, resect ovaries or tubes, or do whatever one thinks will relieve the sufferer. In case No. 15 the ovaries were found healthy to all appearance, but surrounded by old peritonitic adhesions. The adhesions were carefully separated and the ovaries put back into the abdomen.

A SERIES OF ABDOMINAL SECTIONS. By DR BREWIS.

No.	Name.	Age.	Medical Attendants.	Date of Operation.	Disease.	Remarks.	Result.
		Years.					
1	Mrs J.	20	Dr Brewis.	Jan. '90.	Diseased appendages.	Enlarged cystic ovaries. Infantile uterus. Intractable pain.	Recovered.
2	Mrs B.	27	Do.	Jan. '90.	Do. (Gonorrhœal).	Inflammation of appendages. Strong adhesions. Scanty menstruation. Drained.	Do.
3	Mrs R.	32	Dr Darling.	Mar. '90.	Do.	Retroflexion with prolapsed enlarged fixed ovaries. Drained.	Do.
4	Mrs H.	32	Dr Brewis.	Jan. '90.	Do.	No adhesions. Good recovery.	Do.
5	Mrs B.	29	Do.	Sept. '90.	Do. (Gonorrhœal).	Inflammation of appendages. Strong adhesions. Drained. (Scanty menstruation.)	Do.
6	Mrs M'K.	28	Do.	Nov. '90.	Do.	Appendages adherent to pelvic floor. Difficult operation. Irrigated. Drained.	Do.
7	Mrs B.	21	Do.	Nov. '90.	Do.	Infantile uterus. Small ovaries and tubes. Constant pain.	Do.
8	Mrs C.	25	Dr W. Lundie.	Jan. '91.	Do.	Adherent enlarged cystic ovaries.	Do.
9	Mrs W.	26	Dr Brewis.	Jan. '91.	Do.	Salpingitis. Cystic ovaries. No adhesions.	Do.
10	Mrs M.	30	Do.	Feb. '91.	Do. (Hæmatosalpinx).	Menorrhagia. Severe pain. Adhesions.	Do.
11	Mrs W.	27	Do.	June '91.	Do. (Gonorrhœal pyosalpinx).	Scanty menstruation. Constant pain.	Do.
12	Mrs D.	37	Dr MacKay, Falkland.	June '91.	Do. (Pyosalpinx).	Menorrhagia. Constant pain. No history of gonorrhœa.	Do.
13	Mrs C.	35	Dr Smith.	Sept. '91.	Do.	Hemorrhage. Pain. Salpingo-ovaritis. Adhesions.	Do.
14	Mrs T.	29	Dr Duff, Wishaw.	Oct. '91.	Do.	Prolapse and enlargement of ovaries. Constant pain. No adhesion.	Do.
15	Mrs C.	27	Dr Brewis.	Jan. '92.	Do.	Ovaries adherent. Adhesions separated. Ovaries not removed.	Do.
16	Mrs W.	39	From Kirriemuir.	Feb. '92.	Do.	Prolapsed, enlarged, adherent ovaries. Drained.	Do.
17	Mrs W.	26	Dr A. Moir.	Dec. 28, 1889.	Ovarian tumours.	Long twisted pedicle. Tumour adherent to omentum and bowel. Drained.	Do.
18	Mrs S.	29	Dr Booth.	May '90.	Do.	Entirely adherent. Wedged in pelvis. Irrigated and drained. Hæmatocele after.	Do.
19	Mrs C.	25	Dr Rosa.	May '91.	Do.	Large tumour. Urine scanty, albuminous, granular casts.	Do.
20	Mrs C.	58	Dr Allan Gray.	Mar. '90.	Do. (Dermoid).	No adhesions. Easy recovery.	Do.
21	Mrs W.	29	Dr Brown, Lester.	Nov. '90.	Do. (Dermoid suppurating).	Adhesions. Suppurating dermoid of left ovary. Irrigated; drained.	Do.
22	Mrs A.	32	Dr Wright, Kelso.	May '91.	Do. (Dermoid).	Dermoid of right ovary. Adhesions. Irrigated; drained.	Do.
23	Mrs D.	27	Dr Brewis.	Apl. '90.	Parovarian cystoma.	Cyst on point of rupturing when abdomen was opened. Adhesions. Irrigated and drained.	Do.
24	Mrs M'K.	33	Dr Dewar.	Feb. '91.	Fibroid. (Uterine).	Hysterectomy.	Do.
25	Mrs I.	41	Dr Brewis.	Sept. '91.	Do. do.	Hysterectomy. Portion in pelvis irremovable.	Death from obstruction.
26	Mrs L.	41	Dr Mill.	Sept. '91.	Do. do.	Subperitoneal fibroid. Appendages removed for pain.	Recovered.
27	Mrs M'T.	45	Dr Brewis.	Feb. '90.	Fibro-cystic tumour of uterus.	Case reported in *Obstetric Trans.*, 1890. Drained.	Do.
28	Mrs D.	24	Dr Rosa.	May '91.	Contracted pelvis. (Pregnancy).	Porro-Cæsarean section, reported *Ed. Obst. Trans.*, 1890-91.	Do.
29	Mrs R.	33	Dr Stewart.	Feb. '92.	Extra-uterine gestation.	Sac in peritoneal cavity entirely adherent. Drained.	Died.
30	Mrs D.	37	Dr Brewis.	Jan. '92.	Ventral hernia.		Recovered.

I always insist on a thorough trial of palliative treatment, as it is frequently successful. Some patients, however, are impatient of it, and more than one has left me to go elsewhere in the hope of being operated on at once. The chief palliative measures adopted are rest in bed, free purgation, occasional blisters, and the use of vaginal tampons soaked in glycerine and boro-glyceride. I have found the latter of great use in inflammatory cases. In addition to their sedative and absorptive action they appear to me to lessen pain by acting as a splint, whereby they limit the movement of the parts.

Secondly, I have no hesitation in at once recommending removal of the appendages when they are found distinctly enlarged, and when pain is present as a more or less constant symptom. Cases of hydrops folliculi, hydro-, hæmato-, and pyo-salpinx furnish examples of this class.

Thirdly, When much pain is complained of, and there is an undoubted history of gonorrhœa, removal of the appendages is the only treatment which will cure the patient.

Fourthly, Cases of severe hæmorrhage not due to uterine disease, and which resist ordinary remedies, can only be successfully treated by removal of the appendages, because they are diseased and are the cause of the bleeding. Pain is present, and may in itself be sufficient to justify operative measures, but I refer more particularly to those cases in which hæmorrhage is the leading symptom, and the one which demands attention.

A patient whom I saw with Dr Smith of Bonnington furnishes an example of the kind of case I mean. The lady was 35 years of age, had been married ten years, had had two children, the youngest of whom was 6 years old. She had had no miscarriages. The patient had suffered from profuse menorrhagia for four years, the period usually lasted ten days, and the amount was so great that Dr Smith had frequently to plug the vagina.

A year before I saw her the uterus was curetted, but with no good result. The ovaries were found enlarged, prolapsed, and fixed by strong peritonitic adhesions; they along with greatly thickened tubes were removed; there has been no bleeding since, and I have little doubt that she will soon regain her former strength.

I have given you, Mr President, the rules which guide me in recommending this operation. I will now briefly mention the after-results. The points usually inquired about are—1st, sexual desire; 2nd, menstruation; 3rd, relief of symptoms—chiefly pain.

With respect to the first of these I can give no information, as I have made no inquiries. Regarding the second point, my experience is that with removal of the appendages the phenomena of the natural menopause become asserted—various nervous reflex symptoms are present in nearly every case. Complete cessation of menstruation occurs in a number, while regular periodic discharges take place in some, and irregular hæmorrhages, more or less profuse, are present in others; sooner or later total absence of discharge comes to all. At one time I thought that if you left behind a small piece of ovary the patient would continue to menstruate. This notion I have found to be erroneous, because in a number of cases, when operating for pain I was not careful to remove the whole ovary, I have noticed that there was no return of menstruation, while in cases where the entire ovaries were taken away there have been those irregular hæmorrhages of which I spoke.

In reference to the third condition, viz., the relief of symptoms, I am able to give a very satisfactory answer. If I exclude the neurotic patients, then I can say that in every case the result has been successful. Every patient that I have been able to question tells me that her old pain is gone, and that she feels a new woman. With my patients of a neurotic temperament it is different—they say the old pain remains. It probably will till the end of their days. I have learnt that the ovaries of neurotic patients are best left alone. I have had three cases of this class, and, as far as I know, they are the only ones who do not rejoice that they have undergone the operation. I have operated on three cases of hæmato-salpinx, two of pyo-salpinx, and one of hydro-salpinx. All were bilateral; none were diagnosed beforehand. I have inquired carefully into the histories of the cases of tubal distension to find out any symptom, or group of symptoms, common to them which would aid us in diagnosing those conditions. It would be of the greatest importance if such cases possessed well-marked pathognomonic symptoms, because these diseases are dangerous to life, and if we were sure of our diagnosis we would be justified in urging operative measures. I did not find their symptoms to differ from those of other affections of the appendages,—pain was common to all, but possessed no special diagnostic characteristic. Three of the cases originated in puerperal inflammation. One case of pyo-salpinx was of gonorrhœal origin, while the other had no specific history; menorrhagia was present in five cases; in one (pyo-salpinx) the type of menstruation had not been altered, the discharge being scanty. Three of the present series had a distinct gonorrhœal history. In fact I attended them in the first instance for acute gonorrhœa. In two of them the appendages were agglutinated by strong peritoneal adhesions; in one the tubes were filled with pus. In all of them there was scanty menstruation and constant pain. My experience of gonorrhœa in the female is, that while in a few cases the inflammation reaches the appendages and produces serious changes, in the majority no such results follow, the inflammation does not extend beyond the vagina.

Ovarian Tumours.—Of the six recorded in this list it is noteworthy that three were dermoids. The first case (No. 17) was an extremely interesting one. The patient was a thin, frail woman, and had been delivered of a seven months' child three months before I saw her. After her child was born she noticed that her abdomen remained large. The swelling presented all the characters of an ovarian cyst, excepting that over its upper surface a distinct bruit was heard, and over the lower two-thirds of its anterior surface a tense band was felt. When the abdomen was opened the lower anterior part of the cyst was found free of adhesions, and the tense band was made out to be the pedicle of the tumour, which was about an inch in diameter, and was twisted two and a half times from left to right. The whole of the upper anterior surface of the cyst was covered with thickened adherent omentum, while on the top and over the entire posterior surface extremely vascular adhesions bound it to small intestine. The adherent omentum was removed, but the bowels were left attached to the tumour, as on attempting to separate them the hæmorrhage was so copious that it was felt the patient could not stand the loss. The anterior surface of the cyst was removed, and its cut edges stitched into the abdominal wound. The points of interest in the case are the torsion, length, position, and tension of the pedicle. The tumour must have been in existence during pregnancy, and, being movable, rotation may have been caused by uterine contractions or fœtal movements. The length of the pedicle may be accounted for by the lax condition of the pelvic ligaments. The position and tension of the pedicle were probably due to the adhesions fixing the upper and posterior part of the tumour. The vascular bruit heard proceeded, in all likelihood, from the vessels of the omentum stretched over the tumour. The patient recovered well, and has now a small fistula.

I have seen one case, in Dr Angus Macdonald's practice, where the tumour was entirely detached from its pedicle, and was nourished by adhesions. In such cases I am inclined to think that the separation is not caused by twisting, but by tension of the pedicle, because the adhesions must be antecedent to the snapping of the pedicle, and of course would prevent twisting of it. Case No. 18 was entirely adherent, and the lower part of it was wedged in the pelvis, and is interesting on account of the hæmatocele which formed after operation.

Fibroid Tumours of the Uterus.—In both of the hysterectomies recorded here, and also in the case of myomectomy, the pedicle was secured extra-peritoneally by Tait's modification of Kœberle's wire constrictor. This instrument, in my opinion, leaves nothing to be desired as a pedicle clamp. In the case which ended fatally, death resulted from intestinal obstruction, caused by a portion of the tumour which was fixed in the pelvis and was irremovable.

The case of myomectomy, which proved the most difficult operation that I have been called on to perform, has already been brought before the notice of the Society. The Porro-Cæsarean section has also been recorded in the Society's *Transactions*. I do not intend to discuss the case of extra-uterine gestation to-night, as I hope to report it fully on a future occasion, after I have completed a microscopical examination of the sac. The operation was performed in the thirteenth week of pregnancy. The sac was in the abdominal cavity, and had to be dug out from among the bowels and omentum in which it was embedded. The sac ruptured during the manipulations, there was copious hæmorrhage, and the patient died suddenly from shock a few hours after the operation.

I have never tapped an ovarian or parovarian tumour for diagnostic purposes. Tapping is a very dangerous proceeding, because we never know beforehand the nature of the tumour contents. A patient of mine had ascites, and when she died the peritoneum was found invaded by malignant growths. A year before I saw her she had an ovarian tumour, which had been first tapped and shortly afterwards removed. Probably the peritoneum became infected at the tapping. As we cannot diagnose with certainty a parovarian from an ovarian tumour, tapping should never be practised when we think it is the former. Even if our surmise turns out correct, the fluid of a parovarian tumour is not always innocent. Several cases of burst ovarian cyst have come before my notice, and all have had thick, jelly-like contents. In them the walls are thin, and as the contents are semi-solid, rupture easily takes place. The contents of these tumours are apparently of a malignant nature. The case mentioned at the beginning of this paper shows that; and in one case of Dr Macdonald's, in which he removed the ovarian tumour and also the opposite ovary, a large cystic tumour formed about a year afterwards. The parovarian tumour recorded in this series was found on the point of rupturing. The cyst wall proper was rent, but the peritoneal covering was intact, and held the fluid. On more than one occasion I have felt cysts of considerable size collapse during an examination without giving rise to symptoms. These must have been thin-walled parovarian or broad ligament cysts with watery contents.

The above operations were all performed in the Cambridge Street Home for Women, and I am greatly indebted to Drs Aitken Clark and Alex. Macdonald for the valuable assistance they have given me.

VII.—NOTES ON A CASE OF PLACENTA PRÆVIA.

By G. Owen C. Mackness, M.D., Broughty Ferry.

(*Read before the Edinburgh Obstetrical Society 10th February* 1892.)

The condition of placenta prævia carries with it such enormous risks to the patient and so much anxiety to the medical attendant, that I feel justified in bringing before you the following notes of a case in which there were in addition some rather unusual complications.

Mrs M——, aged about 40, came on October 6th, 1891, asking me to attend her in her confinement, which she expected about the end of November. She stated that she was pregnant for the eighth time, and that at her last confinement she had been delivered of twins. All her previous labours had been quite normal, and in them she had only had the assistance of a neighbour; this time, however, she felt some unaccountable nervousness, and wished the attendance of a medical man. She was perfectly well except for some slight dyspepsia, which simple treatment at once corrected.

Nothing further was heard of her until December 2nd, when a note came from her husband to say that for the last two days she had not been feeling very well and would like to see me. I visited her that day, and found her engaged in her ordinary household duties; but she stated that for the two previous days there had been some pains, and that on this morning slight hæmorrhage had commenced. Per vaginam examination showed that she had reached her full term. The os uteri barely admitted the tip of the forefinger, and the membranes, which could only just be reached, felt slightly thickened. Through the cervix nothing abnormal could be detected, and there was no unusual pulsation. The case seemed to be one of slight accidental hæmorrhage, and was treated as such, while strict orders were left that if the hæmorrhage returned she should send for me at once. At 2.30 P.M. next day I received a message asking me to call and see her, and on reaching her at 3.30 P.M. I found that she had unfortunately neglected these orders. There had been severe hæmorrhage at 4.30 A.M., which lasted for over three hours, and at 11 A.M. infrequent pains commenced, each pain being accompanied by a great gush of blood, and this was still going on when I arrived. She was lying in bed almost pulseless, the extremities cold, and lips blanched; the mattress was saturated with blood, which had run down and formed a large pool on the floor.

On examination the vagina was found to be full of clotted blood, and after clearing this out the os uteri could be felt to be the size of a florin, while the condition was easily diagnosed to be that of complete placenta prævia. The pains were recurring about every fifteen minutes, each one being accompanied by a great gush of blood, while there was a steady oozing in the intervals. The presentation was vertex, R.O.P., and the os was fairly dilatable. After being surrounded with hot bottles and the administration of stimulants she began to rally, and so introducing my hand into the vagina and dilating the os, I tried to reach the edge of the placenta, which could be easily separated in all directions except posteriorly, but failed to do so; then pushing two fingers through the placenta and manipulating over the abdomen with the other hand, the right leg was seized and brought down through the placenta and os uteri. Ergot and more stimulants were given, and she rallied well, but there was no increase in the frequency of the pains, while the hæmorrhage still persisted; so again passing two fingers into the uterus, the left leg was seized and brought down also. The bleeding now ceased entirely, and her condition rapidly improved. Her pulse became fairly good, although still about 120 per minute. She took some hot tea and more ergot, without any improvement in the pains, however. Owing to the large surface of placenta which had been separated in trying to reach its edge, and the great amount of hæmorrhage, it was obvious that if the child's life was to be saved the labour must be hurried as much as possible, and so I proceeded to aid the pains by expression. By 5 P.M. the body of the child was through the os uteri, but it was found impossible to make any further progress, and on examination this was seen to be due to the cord, which, as it ran from the umbilicus, turned posteriorly to its attachment to the placenta on the anterior surface of the uterus, passed between the child's legs, and so suspended it in the vagina by its shortness, and prevented any further descent of the child until the placenta became detached or the cord itself was divided. There was, therefore, now no hope of saving the child; and after ligaturing and dividing the cord, the delivery was completed at 5.15 P.M. The child was a large, well-developed male, and dead. The uterus contracted well; but as the hæmorrhage continued, and the placenta could not be expressed owing to considerable adhesion posteriorly, it was peeled off and delivered. It was of large size, and had a considerable rent almost in its centre, through which the child had been delivered. The cord was attached very near to what had been its anterior margin, and was extremely short, thus explaining how it had got between the child's buttocks when version was performed, and so impeded delivery. The hæmorrhage now ceased almost entirely, and the uterus contracted well. The patient was of course suffering considerably from shock and loss of blood, the pulse being weak and rapid, and the extremities cold; but after the administration of hot tea with stimulants, and the renewal of the hot bottles, she rapidly rallied and spoke calmly, expressing her relief that all her troubles were over. Suddenly at 5.45 P.M. she complained of a sharp pain, which she definitely localized to a spot just to the right of the centre of the sternum. Her respirations became rapid and shallow, her pulse rapid and weak again, and her face cyanosed, while she commenced to vomit. Stimulants were freely given, but she rapidly grew worse, still complaining of the acute stabbing pain, which she definitely localized. At 6.15 P.M. she became unconscious, and died at 6.30 P.M. There can be little doubt that this sudden and unexpected termination of the case, just when she seemed as if the worst of her troubles were over, was due to an embolus which had escaped from the uterine sinuses and lodged in the pulmonary artery.

Among the points of interest in this case was the strange and unaccountable foreboding of trouble in this labour which induced her to seek medical aid in it, although on former occasions she had been content with the assistance of an unskilled neighbour—a foreboding for which no cause can be found, as her pregnancy had in every way been normal. Here, too, we had to deal with one of those cases where there was no previous warning of the condition, and where it was not possible to diagnose it from accidental hæmorrhage, even on the day preceding the labour.

Perforation of the placenta has not many advocates, except in cases such as this, when it is found impossible to reach the edge of the placenta. Playfair[1] says that in complete placenta prævia, "although many authorities advise the penetration of the placenta itself, I am inclined to think that it would be better to abandon the attempt and trust to other methods of treatment." It is difficult to see what method of treatment other than turning, and so plugging the os uteri with a leg of the fœtus, was feasible here. Barnes' bags could not have been retained in the cervix; and even if the vagina had been plugged, the large size of the placenta, and the consequent difficulty in reaching its edge, would still have rendered its perforation necessary.

The passage of the cord between the legs of the fœtus was due to the necessity of bringing down both legs, and could not well have been detected, owing to the small hole in the placenta through which it was necessary to work. It would have caused no trouble had the case not been complicated by the extreme and unusual shortness of the cord.

The mother rallied wonderfully, and her chances of ultimate recovery seemed very fair but for the unfortunate further complication of pulmonary embolism which supervened. Coagulation of the blood is especially liable to occur in cases where there has been severe hæmorrhage; and Merriman has noted that phlegmasia dolens is relatively a common occurrence in placenta prævia[2] owing to this; moreover, in those cases where death occurs from pulmonary thrombosis, a large number are found to have suffered from severe post-partum hæmorrhage.[3] In this case the great loss of blood, and the consequently weak circulation, favoured the formation of thrombi in the uterine sinuses, and then, when the circulation grew stronger as she commenced to rally, one of the newly-formed clots must have separated and been driven into the general circulation. It is very rarely, however, that embolism occurs so soon after delivery, being much more frequent at a later period.

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[1] *Science and Practice of Midwifery*, vol. ii. p. 96.

[2] Leishman, *System of Obstetrics*, p. 710.

[3] Playfair, *Science and Practice of Midwifery*, vol. ii. p. 369.

VIII.—PEDUNCULATED UTERINE GROWTHS: A PRACTICAL *Résumé* OF A SERIES OF CASES.

By F. W. N. HAULTAIN, M.D., F.R.C.P. Ed., Lecturer on Midwifery and Diseases of Women, Edinburgh School of Medicine; Obstetrician and Gynæcologist, Royal Dispensary, Edinburgh.

(*Read before the Edinburgh Obstetrical Society*, 11*th May* 1892.)

HAVING within the last nine months had under treatment four patients suffering from intravaginal pedunculated uterine growths, each of which represented a distinct type of neoplasm, I bring before you a short account of the cases and a description of the structural character of the tumours, which I hope may be of interest both from a clinical and a pathological standpoint.

Stalked growths of the uterus, though not infrequently met with, cannot be reckoned as of common occurrence,—thus, for instance, in Ward 28, Royal Edinburgh Infirmary, during the last six years only twenty-two cases are recorded: of these seventeen were examples of fibromata, the remaining five being mucoid. The four cases which directly came under my care may be shortly cited as follows.

CASE I.—Patient, aged 52, complained of continuous fœtid sero-sanguineous discharge and bearing-down pains which had lasted four years, and had reduced her to an extremely weakly and anæmic state. She had always been regular but rather profuse in her periods. Three years previously cancer of an extremely rapid type had been diagnosed, and her demise assured as being merely a matter of a few months at the longest. Having anxiously and expectantly waited these three years without any apparent more immediate approach of the inevitable, she was advised to seek further advice. Upon being asked to see her, I found the vagina to be blocked by a large ulcerated mass, smooth and free at its periphery, and quite movable; with difficulty I succeeded in getting my fingers above the tumour, and found it to be slightly attached to the anterior cervical lip, and by twisting the tumour round 1½ turns the thin attachment was severed, and delivery of the tumour accomplished. This latter proved to be the most difficult part of the operation, and a slight laceration of the perineum was caused by its performance. Antiseptic douching formed the after-treatment, and from that day to this (seven months) the patient has not lost another drop of blood per vaginam. The polypus proved to be a pedunculated submucous fibroid.

CASE II.—Patient, aged 60, menopause at 44, complained of a red vaginal discharge which had lasted off and on for eight months; she also suffered from vesical symptoms, constipation, and an intense bearing-down pain.

On examination a large lobulated mass was found growing from the posterior lip of the cervix, attached by a pedicle of about $\frac{3}{4}$ inch thick.

The tumour was removed by chain ecraseur, and great difficulty was found in controlling the hæmorrhage—a styptic vaginal plug being a *sine qua non.* The patient made a good recovery, and three months after the operation, on local examination, showed no return of the growth; she has, however, unfortunately left for America, and is, I am afraid, quite removed from observation.

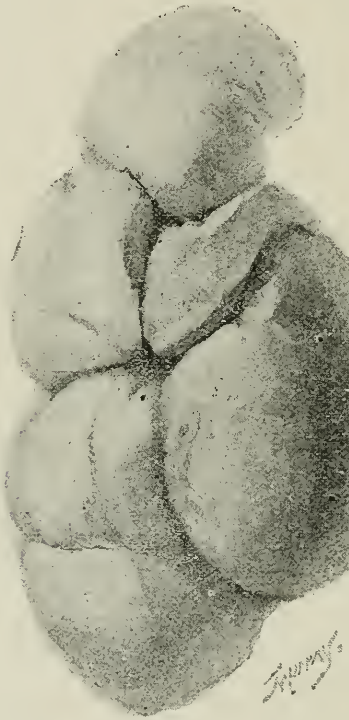

Fig. 1.—Polypoidal Fibro-Sarcoma of Cervix Uteri (from Specimen full size).

(Fig. 1.) The tumour, as I show you, has a lobulated, almost hepatic appearance; its consistence is soft, while its free surface is smooth and free from ulceration, and its pedicle to the naked eye shows numerous large patent bloodvessels, from which one can well appreciate the significance of the statement already made, that the hæmorrhage after removal was with difficulty controlled.

Microscopically the tumour may be seen from specimen before you to be a sarcoma, composed of numerous oat-shaped cells, with a surrounding matrix of fine fibrillæ, through which coursed numerous fairly-formed bloodvessels. The pedicle was formed by well-marked bundles of muscular tissue, between which ran large patent bloodvessels, but in the tumour itself no muscular fibres could be seen, while no evidence of sarcoma cells was found in the pedicle. A thin fibrous layer covered the various lobes of the growth.

Case III.—Patient, aged 33, two children, complained of vaginal hæmorrhage which had lasted continuously for six weeks; before then menstruation had been quite regular and normal. As a polypus was diagnosed I was asked to remove it, and on preceeding to do so I recognised that the growth, though markedly pedunculated and growing from the post cervical lip, was softer and more hæmorrhagic than is usual with these tumours. I therefore decided to use the galvanic cautery for its removal,—a decision I by no means repented of, when I examined the divided pedicle.

Upon examination the growth had a mushroom like appearance (Fig. 2); its lower surface was rough and irregular, and composed of friable tissue, while the upper surface was smooth and continuous with the pedicle. Upon microscopical examination it proved to be a soft rapidly growing carcinoma, infiltrated with leucocytes, as shown in the accompanying section under the microscope. The pedicle was formed of fibrous tissue with large drawn-out patent bloodvessels with muscular coat absent, but not a trace of epithelial cells could be found.

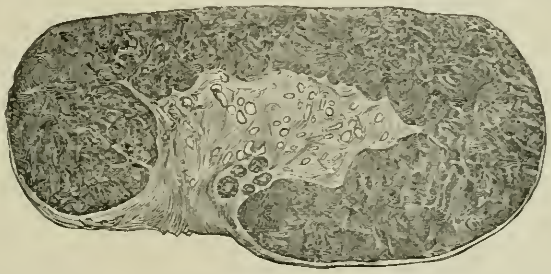

Fig. 2.—Section through Carcinoma of Cervix Uteri, showing its markedly pedunculated character. Light shading shows vascular pedicle, dark shading shows epithelial growth.

A week after the operation the patient suddenly was seized with abdominal pain, and to our surprise was delivered of an ovum of about 4 months' growth. She, however, made a good recovery, and as yet (after six months) shows no recurrence of the disease.

Case IV.—Patient, aged 34, complained of constant hæmorrhage from vagina, which had lasted for six weeks. She had been profuse in her periods for nine months, and suffered from severe leucorrhœa and pain in back and bearing down. On examination a small growth about $\frac{3}{4}$ of an inch long and about the thickness of an ordinary lead pencil was found growing from the mucous surface of the cervix about $\frac{3}{4}$ inch from os externum, through which it protruded. Attempts to remove by twisting proved unsuccessful, and a wire snare was eventually required. After removal the hæmorrhage, pain, and leucorrhœa ceased. The growth on microscopic examination was found to consist of a central mass of extremely close fibrous tissue, covered by many layers of horny squamous epithelium, while opening on the free surface were numerous glands lined by extremely long columnar cells secreting mucus.

Independently of their clinical significance, concerning which this communication is chiefly intended, the pathological characters of the growths described are extremely interesting. They simulate each other in but one character, their pedunculation; otherwise they represent four distinct varieties of neoplasm, viz.:—Fibromyoma, sarcoma, epithelioma, fibro-adenoma. The relative frequency of these tumours is extremely varied; thus the fibromyomata form about 70 per cent. of all pedunculated uterine growths, while the adenomatous or mucous variety account for by far the greater proportion of the remaining 30 per cent.: the pedunculated variety of carcinoma being unfortunately but too rare, while sarcomata of any type are by no means common.

Fibroid polypi, although forming such a large proportion of the pediculated growths, are only met with in about 16 per cent. of fibroid uterine tumours; thus it must be at once apparent that pediculated uterine growths, though by no means rare, cannot be classed as by any means frequent. The microscopic characters of the small growth removed from Case IV. are of much pathological interest. To accurately and succinctly classify it would seem to me to present great difficulty. From its dense fibrous basis it differs in a marked degree from the ordinary structure of a mucous polypus, while its epithelial and glandular covering distinctly remove it from the category of the fibroids. Its covering of squamous epithelium is also interesting when we consider that the growth was distinctly intra-cervical. This peculiarity has already been shown by Underhill.

In considering the clinical features of these pedunculated growths I have described, it will be apparent that they were all associated with watery vaginal discharge, menorrhagia and metrorrhagia; in the case of the small fibro-adenomatous growth this was almost as severe as in the malignant varieties,—vaginal discharge, therefore, with hæmorrhage may be said to be their constant characteristics. The hæmorrhage is out of all proportion to the size of the tumour, and would appear in the benign varieties to be due to a congestion of the uterine body, the cavity being in all cases lengthened. In Case III. the bleeding necessarily arose from the ulcerated surface of the growth, discharge from the uterus being prevented by its gravid state. The large number of extravasated leucocytes in the tissue of the cancer is, I think, of much value in showing how pregnancy from increasing the vascularity of the tissue must tend to hasten the course of the disease, and opens up an important field for discussion as to whether, in cases of cancer occurring with pregnancy, the uterus should not be emptied as soon as possible, so that the disease may be treated without delay, and further rapid advancement prevented, even though absolute and entire removal of the growth is impossible.

The continuation of menstruation long after the usual climacteric age is a frequent symptom of the benign group of uterine growths, but the pedunculated varieties tend more than others to an excessive discharge, which rapidly undermines the constitution of the patient. Out of eighteen cases which were directly under my own observation in Ward 28, ten were in women over fifty years of age, in all of whom the climacteric has not yet been reached; one of these is particularly interesting, the patient being fifty-six years old, whose symptoms were entirely due to an intra-cervical mucous polypus not so big as a marble.

Although delaying the menopause, these benign growths are extremely seldom the cause of renewal of hæmorrhage after the climacteric has been reached, this symptom being, one might say, almost the absolute property of malignant affections of the pelvic organs. But as in most rules there are exceptions, the specimen I have already shown to-night corroborates.[1] From this symptom of post-climacteric hæmorrhage being present in Case II., I felt certain we had to deal with a malignant tumour, and therefore recommended its immediate removal. Unfortunately, however, malignant disease of the uterus is but too common before menstruation ceases, and therefore this method of differential diagnosis becomes much restricted in value.

A further point of importance in regard to these pedunculated growths, if cervical, is the circumstance that they may mask the usual signs and symptoms of pregnancy. Naturally sterility, or at least early expulsion of the uterine contents, is the condition generally met with, but should a pregnant condition be maintained, the absence of amenorrhœa prevents any suspicion of its persistence. Thus in Case IV. no idea of the patient's pregnant condition was thought of until expulsion of the uterine contents had commenced. The case is therefore of much value and interest, if it be but in alone offering another grain to the weight of evidence in favour of the rule so rigidly taught in this school, and which admits of no exception, "always to examine pelvic organs bimanually."

As a direct antithesis to the assertion just made, that the symptoms of pregnancy are frequently masked by polypi, two cases may be incidentally here mentioned that came under my notice in Ward 28, Royal Infirmary, Edinburgh, in which there was associated with a mucous polypus such a secretion of milk that the patients believed themselves pregnant from that sign alone; in both these cases, after the removal of the growths the secretion of milk subsided. That the symptom occurred in two different cases would seem to make it of more interest than a mere coincidence, but I have failed to find any reference to a similar condition in the literature of the subject.

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[1] Dr Haultain showed a specimen of a fibro-adenomatous polypus removed from a patient, aged 70, which had caused much hæmorrhage for the previous 7 months.

The points of differential diagnosis between an ordinary fibroid polypus with its smooth surface and the rough cauliflower cancer are so well marked that reference to them is unnecessary, but a very different state of matters exists when the capsule of the fibroid polypus has become ulcerated. The conditions now become very similar both as regards symptoms and signs; the fœtid discharge, the cachexia, and the rough ulcerated surface of the tumour, are common to both, and it is only by thorough and careful manipulation that a distinction is to be made out. For this purpose there are two points which require special notice, the first being the smooth upper surface of the fibroid polypus, and, secondly, the ease with which it can be twisted. The smooth upper surface of the fibroid polypus, where no ulceration of the capsule exists, is an extremely satisfactory means of differentiating it from the ordinary soft papillary form of cervical cancer (cauliflower growth), but in the cancerous case I have just cited (mushroom growth) no such difference existed. The rotatory mobility of ulcerating fibroid polypi is, I consider, one of the greatest practical importance in their diagnosis, and is usually due to the fact, that before an intravaginal uterine polypus becomes ulcerated, its pedicle is, as a rule, extremely small; on the other hand, malignant growths being nourished through their pedicles are firmly attached, and therefore difficult to rotate,—in fact the ulceration in the malignant growth may be said to be due to an excess of growth and vitality, while in the fibroid it is a process of death and decay. I have, perhaps, dwelt unnecessarily long on the subject of diagnosis, but even with my limited experience I have seen several mistakes committed with regard to these growths, and I can conceive no more easy method of establishing one's reputation at the expense of one's fellow-brethren than by removing, practically with a "turn of the wrist," a disease said to have been incurable, and which is undermining the constitution of the patient. Surely even Count Mattei's treatment must dwindle into insignificance at such miraculous results.

I have abstained in the foregoing brief remarks from entering in any way into details upon the extensive subject my paper deals with. I have refrained even from so much as touching on its literature, as my object has been mainly to bring before the Society a record of the somewhat interesting series of cases mentioned, and incidentally, as far as possible, to interest you in some of the clinical features they displayed. To Dr Stiles, Surgical Pathologist, Edinburgh University, I am indebted for the preparation of the excellent microscopic sections of the tumour I show you.

Part Second.

REVIEWS.

Annual of the Universal Medical Sciences: a Yearly Report of the Progress of the General Sanitary Sciences throughout the World. Edited by CHARLES E. SAJOUS, M.D., and Seventy Associate Editors, assisted by over Two Hundred Corresponding Editors, Collaborators, and Correspondents. Illustrated with Chromo-Lithographs, Engravings, and Maps. Philadelphia, New York, Chicago, and London: The F. A. Davis Company: 1892.

AGAIN with early autumn another series of this magnificent annual has appeared. In previous notices we have nearly exhausted our adjectives of praise, and now have little to add except that, as a work of reference, as a record of all that is really important and valuable in the medical literature of the world, it is absolutely peerless, and need fear no other rival than its own previous successes. This series seems, if possible, still more up to date than that of last year, and its index is a marvel; for it is easy to understand, and so arranged that any one seeking the latest information on any given medical or surgical subject can find his reference in an exceedingly short time, and with perfect ease.

No public medical library can afford to be without it. If its owner wishes to save his time and patience, every private library worth the name should have a shelf on which to arrange year after year these marvellous five volumes.

A Text-Book of the Practice of Medicine for the use of Students and Practitioners. By R. C. M. PAGE, M.D., Professor of General Medicine and Diseases of the Chest in the New York Polyclinic, etc., etc. New York: William Wood & Company: 1892.

THE principal object of the author in writing this book is stated to have been to facilitate clinical instruction, and enable both physician and student to obtain in brief the most practical as well as scientific view of the various subjects treated of in a work of medicine. Such a task is by no means an easy one, but Dr Page has succeeded in giving, perhaps a considerably curtailed, but, nevertheless, a clear, succinct, and interesting description of the greater number of the maladies which call for the attention of the physician. We say the greater number, inasmuch as diseases of the cutaneous system have been entirely omitted. This is unusual, but not unwise, considering the complexity of these affections, which seems to call for special instruction and special text-books. The greater part of the work deals with symptoms and therapeutics, the reader being referred to other standard works for details of morbid anatomy. As was to be expected from one who has already written a very useful book on Physical Diagnosis, the sections on Diseases of the Heart and of the Respiratory Organs are particularly good. The whole work shows a large acquaintance with medical literature, which is not, however, too obtrusively displayed. This, with the author's lengthy experience, combines to make the work one that well fulfils the purpose for which it was written, and it ought to prove very acceptable to those for whom it is more particularly intended.

Arrested Pulmonary Tuberculosis. By JAMES KINGSTON FOWLER, M.A., M.D., F.R.C.P., Physician to the Middlesex Hospital, etc. London : J. & A. Churchill : 1892.

THIS small volume, whose pages are largely reprinted from the *British Medical Journal,* forms a valuable and opportune contribution to the literature of pulmonary tuberculosis.

Obsolete tubercular lesions have been long admitted as of frequent occurrence. But practically the point has been less accentuated than might be desired, in relation to the prognosis and treatment of the disease. Dr Fowler tabulates the lesions which have been found in the condition of arrest, and discusses the frequency of these as evidenced by the reports of autopsies on persons dying from other affections. As is well known, authorities differ much regarding this question. Some medico-legal authorities maintain that such lesions are, in their experience, of most frequent occurrence. Thus Brouardel cites 60 per cent. as the proportion. Pathologists have fixed the percentage at varying figures. Coats quotes 23 per cent.; while Heitler, from an analysis of 16,562 necropsies at the Institute of Pathological Anatomy of Vienna, gives the percentage at 4. Dr Fowler and Dr Sidney Martin have separately analyzed groups of cases at Middlesex Hospital, and come to the conclusion that in approximately 9 per cent. such lesions occurred. An interesting abstract of Dr Fowler's cases is appended.

The volume is in line with a good deal of recent work on the subject, and is to be welcomed as emphasizing certain encouraging factors in the pathology of tuberculosis, apt to be forgotten in the fight against this disease, which from some other aspects is eminently disappointing. In common with many recent writers on the subject, the author discards the term "phthisis," for the reason that its continued use serves chiefly to perpetuate confusion. Exception may be perhaps taken to the catalogue of "varieties" which is presented. The division into groups seems to rest on no sufficient principle.

The Treatment of Tuberculosis of Bones and Joints by Parenchymatous and Intra-articular Injections. By NICHOLAS SENN, M.D., of Chicago.

READERS of the *Annals of Surgery* are already familiar with this valuable paper by Professor Senn, which appeared in this year's January number of the *Annals*, which has now been issued as a reprint. From the results which have been already obtained by the injection treatment of tubercular diseases, the latter is now regarded by Senn and others as one of the important achievements of modern surgery. The remedies used for the purpose are such as possess antiseptic and stimulating properties, and are employed with the view of destroying the bacilli or of aiding and expediting the process of repair. One or other, or both of these properties are possessed to a varying degree by the following substances, which have been suggested and used by different surgeons: tincture of iodine, carbolic acid, arsenious acid, corrosive sublimate, phosphate of lime, chloride of zinc, balsam of Peru, camphorated naphthol, and iodoform. The last-named now enjoys the highest reputation among these substances on account of its generally recognised anti-tubercular action, while next to it in order of merit comes balsam of Peru. Senn is careful to point out that the reputation of iodoform in this respect rests rather on the results of clinical observations than on conclusions drawn from experimental work. The best form for administration of the drug would appear to be a 10 per cent. sterilized emulsion in glycerine, of which from 3 to 8 drams may be injected at a time with greatest benefit and least danger, the process being repeated at intervals ranging from one to four weeks, according to the nature and progress of the case. In tubercular joints and cold abscesses the contents are first to be evacuated through a cannula or small incision, the cavity is then thoroughly cleansed by repeated irrigation with a weak sterilized solution of boracic or salicylic acid, and finally the iodoform emulsion is introduced by means of a syringe, and distributed thoroughly throughout the cavity and its various recesses. Parenchymatous injections into tubercular tissues are made with a syringe and hollow needle after the method employed in injecting cocaine as a preliminary to minor operations. Professor Senn records very fully the results which have been obtained by iodoform injections in his own surgical clinic in the Rush Medical College, and gives a summary of the experience of European surgeons to whom the credit is due of having introduced this method of treatment.

Surgical Diseases and Injuries of the Stomach and Intestines. By F. BOWREMAN JESSET, F.R.C.S., Surgeon to the Cancer Hospital, London: Baillière, Tindall, and Cox: 1892.

THE very valuable and original work of Professor Senn of Milwaukie on the subject of intestinal surgery has stimulated many other inquirers both in this country and in Europe. Mr Jesset has been one of the most active and enterprising of these workers; and notwithstanding the manner in which in this country original research by experiments on animals is handicapped by zeal without discretion, he has made some valuable and important original experiments, which have already borne good fruit in the treatment of some of the most dangerous and painful maladies to which humanity is liable. A short series of lectures was delivered at the Cancer Hospital on the results of the experimental work and to its application to actual practice. These lectures are the foundation of the present work. Beginning with a chapter on surgical diseases of the stomach, in which he describes and contrasts the various operations for relief of obstruction or removal of tumour, the author devotes two chapters to the surgical diseases and injuries of the intestines, including under these terms tumours, adhesions, volvulus, typhoid ulcers, syphilis, and wounds of all kinds. Accurate diagnosis and early treatment are the essentials to successful results. The fourth chapter is on operations on the intestines and on the methods of intestinal anastomosis by decalcified bone plates, associated with Professor Senn's name. The whole work is admirably practical, profusely illustrated by rough but intelligible diagrams, and is a valuable contribution to practical surgery.

The Students' Hand-book of Surgical Operations. By FREDERICK TREVES, F.R.C.S., etc., with 94 Illustrations, pp. xv. 495. London: Cassell & Company, Limited: 1892.

THIS little work is abridged from the author's large manual of Operative Surgery. This one gives the actual technical details of the most essential and commonly performed operations. Where it fails in practical value is in that it does not contain any critical considerations of the value and relative importance of various methods. In the dissecting room, where aided by the advice of a competent teacher the student is doing operation after operation on the dead body, the technical description of exact method of making the selection of ultimate and precise details as to flaps, will prove most useful. The surgeon in a ship or in the backwoods will miss absence of any guidance as to reasons for selection and information about relative mortality and usefulness of given procedures which he will find in other manuals.

On the Relief of Excessive and Dangerous Tympanites by Puncture of the Abdomen. By JOHN W. OGLE, M.D., Consulting Physician to St George's Hospital. London: J. & A. Churchill: 1888.

THE substance of this memoir appeared as a communication to the *Lancet* in July 1887. The author advocates that relief should be given in cases of dangerous over-distension of the bowels by multiple puncture through the abdominal wall with a fine trocar and cannula. The greater part of the volume is devoted to an exhaustive *résumé* of the literature of the subject.

De la Périnéotomie et de ses Applications. Par le Dr CH. WILLEMS, Assistant à l'Université de Gand. Paris: Babé et Cie: 1892.

UNDER the above title, which must not be translated as "perinæal section," the author describes a number of operations which have this in common, that they start with a preliminary dissection in the perinæum, by which some more deeply-seated disease, whether in the perinæum itself or in the cavity of the pelvis, may be successfully dealt with. The various steps of the perinæal dissection, in the male and female respectively, are described in great detail, the text being illustrated by four phototype plates; in the succeeding chapters the applications of the perinæal dissection are discussed in relation to extirpation of the rectum, diseases of the prostate, cystotomy, recto-urinary and recto-vaginal fistulæ, extirpation of the uterus, and the operative treatment of intra-pelvic tumours. While laying no claim to originality of conception, the author is of opinion that the procedures described are not sufficiently recognised by surgeons; having practised them extensively on the cadaver, he expresses himself as convinced of their superiority to those previously practised.

A Manual of Autopsies, designed for the Use of Hospitals for the Insane and other Public Institutions. By I. W. BLACKBURN, M.D., Pathologist to the Government Hospital for the Insane, Washington, D.C. Philadelphia: P. Blakiston, Son, & Co.: 1892.

FROM the preface of this little manual it appears that the Association of Medical Superintendents of American Institutions for the Insane has for some time been considering the desirability of American asylums adopting some uniform system of reporting autopsies. The result was the appointment of a committee to consider the matter, and they reported that it was not advisable to make any attempt to tabulate the results of autopsies in any uniform set of tables, but that they should be made according to an established routine, and that cases should be accurately recorded omitting inferences and opinions. Dr Blackburn was appointed to prepare a manual with the above objects in view, and the present little volume is the outcome of that commission. The instructions given are not likely to be found fault with by pathologists; and the style is clear, precise, and direct. All that a book can do, this will; but that men should be appointed to responsible posts, part of the duties of which is to make autopsies, without having had practical training in the *post-mortem* theatre, is a survival of the practice of a time, and that not remote, when even a pathologist was expected to do little more than note gross lesions, and when anyone was looked upon as qualified to make an efficient autopsy. The book is illustrated by drawings of vertical sections of the brain intended as a guide to the recording of the situation of lesions, and at the end of the volume there is a concise description of the more useful and most used methods of preparing tissues for microscopical examination.

Essentials of Histology. By E. A. SCHÄFER, F.R.S., Jodrell Professor of Physiology in University College, London; Editor of the Histological Portion of Quain's *Anatomy.* Third Edition, Revised and Enlarged. London: Longmans, Green, & Co.: 1892.

WE welcome with pleasure a new edition of Professor Schäfer's *Essentials of Histology.* It would be difficult to find a book better suited to the wants of the medical student.

Though the plan and general arrangement of the previous edition is preserved, numerous additions and alterations have been made, and the whole has been brought abreast of the most recent advances in histological science.

The Extra Pharmacopœia. By WILLIAM MARTINDALE, F.C.S., and W. WYNN WESTCOTT, M.B., London. Seventh Edition. London: H. K. Lewis: 1892.

THIS new edition of what is now an indispensable adjunct to every practitioner's study-table or pocket is well up to date. The derivatives of coal-tar and various alkaloids which have of late been so fashionable are still utilized in increasing numbers. Synthetic compounds rather than those the result of analysis are in vogue, so that 300 new entries have had to be made in the index; a short note of the more important of these is found in the preface to this edition. Morbific cultures as antidotes to parent bacillary causes of certain diseases have to be noticed; and tuberculin and tuberculocidin are carefully described, though their reputed virtues are wisely estimated with moderation, and their use is recommended with great caution. The work maintains its high reputation for accuracy and usefulness.

Grundriss einer Klinischen Pathologie des Blutes. Für Aerzte und Studirende von Dr R. R. v. LIMBECK, Privatdocenten für innere Medicin an der deutschen Universität Prag. Jena: Verlag von Gustav Fischer: 1892.

BOOKS loaded with facts are generally interesting, but wearisome. Now and then such a book engages our intention by its style, and thus impresses the facts more pleasantly and durably on the attentive brain. This volume contains the facts, and halts there. Necessarily, from its nature, a compilation, here and there the author's own opinion appears, but this occurs far too seldom. In the description of the various methods, which forms the first part of the book, though excellent enough in its way, some further opinion of their accuracy and applicability would be welcome. The fact that the effects of heat, compression, drying, and various destructive agents on the red blood corpuscles are noted, is sufficient to show that this division of the book is fairly complete. More might have been introduced with advantage on the subject of the blood-plates and their significance. The rest of the volume is taken up with the changes in the character of the blood in various disorders, in the course of which many interesting clinical examples are given, many of them including daily examination of the blood. The author has little knowledge of the blood pigments.

Illustrated Lectures on Nursing and Hygiene. By R. LAWTON ROBERTS, M.D. Lond., etc., Lecturer and Examiner to the St John's Ambulance Association. Second edition, pp. xxii., 213; 69 Illustrations. London: H. K. Lewis: 1892.

THE latter half of the nineteenth century may certainly be credited with the honour of witnessing a vast progress in the whole subject of the care of the sick. Florence Nightingale's work in the hospitals of the East, and Dickens's satire in the slums of London, awakened the conscience of the practical Briton, and the managers of the great hospitals saw that nursing must be elevated from being the last resource of an aged and drunken charwoman to be a profession which would engage the energies of many an idle lady, and give an honest and creditable living to the best of the young women of the middle classes. The Queen's most wise dedication of her jubilee gift from the women of Britain to foster the progress of district nursing in the homes of the sick poor has been a splendid impetus to the spread of this most noble form of charity. Nursing, intelligent and devoted, is now an essential in every hospital, parish, and home, and it must have its own literature, which is immense in quantity and most varied in quality. This work is an excellent one, and does for home and district nursing what the author's previous volume did for ambulance work. We can recommend it most highly.

Trattato d'Igiene Publica. Dal Dottor CARLO RUATA, Professore dell' Università di Perugia. Vol. I. Città di Castello: S. Lapi.

Treatise on Public Hygiene.

SINCE his appointment to the chair of Materia Medica in the University of Perugia, Professor Ruata has devoted close attention to the question of sanitation, more especially as bearing on the salubrity of his native land,—a subject of high scientific, humanitarian, and patriotic importance. The picturesque scenery, climatic charms, and historic attractions of Italy are no longer to be regarded as cause for sorrow. The "dona infelice di bellezza," the unhappy gift of beauty which Filicaja so pathetically deplored, is now to be ranked as a valuable element of national emolument and prosperity. It has been stated recently that the annual contribution to Italian incomes paid by the well-to-do of all civilized nations amounts to above £21,000,000, and as the *classe agiate* who exclusively and willingly pay this impost are becoming daily more alive to the imperative claims of correct sanitation, and to the inevitable penalties of the neglect of them, it behoves the Italian Government and ruling classes to set their house in order at once if they wish to retain or extend their present privileges. Though this point is not to be overlooked, it is obviously subordinate to the physical and consequent moral and social well-being of the 30,000,000 that constitute the population of the kingdom. This volume is devoted to public hygiene—the causes that operate on the entire inhabitants. The author enters fully into the question, and describes in forcible terms the agencies of infective disease, and dwells much on the importance of preventive regimen as distinguished from curative, which latter he regards as being too much the scope of medical energies, while the former should be the main object of the profession. Treating of the causes of infective maladies, their mortality, precautional measures, preventive inoculations, isolation and disinfection, he enters deeply into the topic of vaccination, Jenner and Pasteur's discoveries, showing complete mastery of what is known, done, and said about it, especially in England, America, and Germany. The study of statistics in the former country leads him to the conclusion, that vaccination is infinitely inferior to early and complete isolation of cases, and that the benefit of it to the race is questionable indeed. To this it might be alleged that Dr Ruata's views on this matter are more of laboratory and library than of clinical origin. Those of us who have fought through the epidemic of 1871–72 will clearly remember how few of the vaccinated died in proportion to the number of the attacked, and how much fewer were the recoveries of the non-vaccinated. Those of us whose youthful recollections extend to the second quarter of the century cannot fail to call to mind the large proportion of the scarred faces, blindness of one or both eyes, the deformities and mutilations which then abounded when vaccination was voluntary and often omitted, compared with the aspect of the general population nowadays.

A late esteemed practitioner in East Stirlingshire once told the writer that at his father's marriage there were only three legs present in the bridal party. The bridegroom had lost both his legs in boyhood from mortification after small-pox; Dr S. of Polmont, the best man, had only one leg; the bride, he said, luckily had two good nether extremities, and a good tongue besides.

After discussing the maladies that arise from defective and over alimentation,—pointing out that the food of the different social ranks, the rough and bulky meals of the peasant, and the daintily selected and concocted viands of the citizens, come to much the same results as regards nutrition,—Prof. Ruata speaks of the condition of the "aerial ocean" in which we live as of infinitely greater hygienic import. Respiration and its influences on circulation is discussed with reference to heart diseases—in particular to the endothelium, to which he ascribes the main factor of cardiac degenerations. "The left heart receives directly the blood that comes from the lungs after this has absorbed in the pulmonary capillaries not only the requisite oxygen of the air, but also all these organic and inorganic principles that are present in it. This blood, frequently surcharged with serious impurities, passes directly into the two left cavities of the heart, and proceeds therefrom 70 times per minute on an average, which makes 100,800 times in the 24 hours. It is not surprising, then, that the absorbed deleterious principles should originate in these two cavities those chronic inflammatory processes which result in alterations of the endothelium —alterations dependent on which are these damages that we know as lesions of the valves, from which they become unfitted for their most important functions, with grave disturbance of the whole circulation of the blood. "The two right centres receive the blood that has traversed that exquisite physico-chemico-biologic filter, in which the deleterious principles which are found in the arterial blood, introduced by the air in the lungs, have been necessarily decomposed by active action of the cellular operations. The blood that arrives to the right heart cavities is thereby biologically pure and innocuous, whence is explicable their immunity compared with the two left-heart cavities." This view, original on the part of the author, he proceeds to elaborate to a considerable extent, and is worthy of serious consideration.

He maintains that women are much more subject to heart disease than men in Italy (in 1889 there died of these 22,533 females and 16,159 males); but this he attributes to the house life, in polluted air, which is led by the women, more than to any physiological sexual predisposition.

An interesting disquisition on the longevity and probability of life in Italy leads to a consideration of the sanitary laws and administration, which appear better in intention than execution. On this point he quotes the lines of Dante—

> "Le legge son, ma chi pon mano ad elle?"
> The laws exist, but who puts hand to them?

In passing through the piazza Dr Ruata may daily share in the benediction of the majestic, benignant bronze pontiff, Julius III., but his opinions as regards Divine interposition, the fixity of the natural and moral laws, being those of George Combe, are in direct antagonism to those held by his long deceased Holiness.

This publication, with its wealth of information, close reasoning, and vivid expression, is another important production of the Italian intellect, which for ages past has laid the rest of Europe under permanent obligations.

The Dietetic Value of Bread. By JOHN GOODFELLOW, F.R.M.S., Lecturer on Physiology and Hygiene at the Bow and Bromley Institute, Member of the Société Française D'Hygiène, etc. London: Macmillan & Co.: 1892.

THE main portion of this work was originally contributed to the *Baker's Record* as a series of articles, and this was meant more for the public than the profession. As published, however, it is so full of analytical, useful, and interesting details, that it appeals as much to the physician as to the layman.

The author, we are glad to see, does not hesitate to go into technicalities, and although it may take some hard thinking on the part of the uninitiated to divine the true meaning of maltodextrin, achroodextrin, isomers, and such like, yet the general facts are so clearly stated that these terms should form no real obstacle to the mastering of the contents.

There are one or two slips which require correction; for instance, solubility and diffusibility are not synonymous terms, as would appear from the description on page 45, nor is solubility a test whether a substance has undergone digestion or not, as might be inferred from a consideration of the experiments detailed on page 192.

After pointing out the important position which bread holds in the dietary of the poorer classes, the author goes on to classify foods, to explain the digestive processes, and to consider what are the constituents of a normal diet. Fine white bread does not contain these constituents in the proper proportion; whole-meal bread is a little more suitable, while some of the special malted breads are superior to both the other varieties, in that they contain more proteid material with proportionately less waste.

Discussing the reasons why ordinary whole-meal bread is not a perfect food, he gives the following:—(1.) It yields too little proteid to the body; (2.) It yields a surplus of carbo-hydrate material; (3.) It is deficient in fat, and (4) in mineral matter. He remarks, however, that if the bran of the meal be very finely ground the nitrogenous constituents are raised almost to the necessary level. On careful consideration, and after stating reasons too long to quote, he concludes that finely ground whole bread may be of special value to those who suffer from constipation, or who are inclined to obesity, to nursing mothers, or those who are *enceinte*, to those who have bad teeth, and to children inclined to be rickety.

Many interesting details are given about the different flavours of bread, "nutty," sweet, or sour, as the case may be. The sourness of Scotch bread, it appears, is due to the bacterium lactis.

A well-written, useful book, it will repay perusal.

Catechism Series. Physiology, Part I., Chiefly Histology. Edinburgh : E. & S. Livingstone : 1892.

The publication of such books must indicate a demand for them. Such a demand is the most severe comment on the present system of examination. If it is possible for a student to pass on the knowledge to be obtained from such a Catechism Series, it means that the examiners are unfit for their duty.

Even did the volume bear evidence of being the work of a physiologist it would be worse than useless, for the method does not lend itself to the elucidation of the principles of physiological science. Obviously, however, it is merely a compilation from a course of lectures, and its use cannot fail to be prejudicial to the student.

The Study of Animal Life. By J. ARTHUR THOMSON, M.A. London : John Murray : 1892.

This volume is one of the series of University Extension Manuals edited by Professor Knight, and designed to serve as text-books for classes conducted under the auspices of that movement. Mr Thomson has discharged his task with much skill. He has laboured under the very obvious disadvantage of having a very wide subject to discuss, but for the most part he has succeeded in getting out of his difficulties with credit. Perhaps the chief charm of the book will be found to lie in its style. The author writes with "a flowing pen," and many of his illustrations are apt and to the point. The student in this manual is invited to take a bird's-eye view of the animal world, and though here and there the prospect before him may be a little vague, even when seen through Mr Thomson's glasses, he cannot but enjoy the variety and wealth of living details to which his guide seeks to direct attention. The book should be a popular manual with students and general readers. It will serve admirably as an introduction, not too deep and not too erudite, to the most fascinating of all studies—that of the science of life.

Microscopical Observations on the Hæmotozoon of Malaria, with an Appendix containing a series of Plates of Illustrations and Descriptions. By Surgeon PATRICK HEHIR, M.D., F.R.S.E Madras: Higginbotham & Co.

SURGEON PATRICK HEHIR is to be congratulated upon having furnished us with a capital confirmation of Laveran and Golgi's discovery of the hæmotozoon of malaria. After having given a short history of the discovery of the parasite, he describes a method of investigation he adopted, and makes some sensible remarks on the precautions necessary in the examination of blood, and he then goes on to summarize the information he has obtained after examining 3281 slide preparations of malarial blood, of which 1102 were stained. As the average time taken for one observation was 33½ minutes, the amount of labour represented in these investigations has been very great. The author believes in the diagnostic importance of the hæmotozoon of malaria, and its clinical value in making an early diagnosis of remittent from enteric fever, and he also believes that it will be of value in diagnosing the less marked forms of malarial enlargement of internal organs without symptoms, also certain cases of intermittent hæmaturia, malarial dysentery, neuralgia, etc.

Legal Handybook on the Lunacy Law in its Relation to Custody of the Person, an Explanatory Treatise on the Lunacy Acts 1890 *and* 1891. By DANIEL CHAMIER. London : Effingham Wilson & Co. : 1892.

THIS little book is intended to explain the regulations of the new Lunacy Act for the benefit of persons unaccustomed to make a direct study of Acts of Parliament. The explanations are clearly stated, and as far as we know are correct. Luckily, Scotland has escaped the foolish enactment which has heaped such a grievous burden upon the officers of the English Asylums without being of the slightest advantage to any human being. Mr Chamier gives as an appendix selected criticisms on the working of the Lunacy Acts by medical superintendents of burgh and county asylums. All bewail the senseless amount of clerical work involved in the numerous compulsory returns, entries in case-books, certifications, and recertifications. This new Lunacy legislation was the outcome of some sensational trials and some sensational novels. The apparent design was to prevent people being unjustly detained as lunatics, although there was no proof that such an abuse had ever existed. Indeed, nothing is more surprising than to consider how rare it was for any sane person to be committed as a lunatic, much less detained for any time. On the other hand, when one remembers how frequently innocent people have been found guilty in ordinary courts of law, one might have expected that precautionary legislation should have been directed against judges and juries instead of against medical practitioners and medical superintendents. As Dr A. Law Wade observes,—"Our legislators are attempting a vain task—namely, to secure that no sane man should ever be mistaken for a lunatic. As well may they try to secure in criminal law that no innocent person should ever be suspected or accused of crime. The object should be to insure that no sane person should be unnecessarily detained, and this is just what is not insured."

We see little chance of these oppressive and insulting enactments being modified or repealed. They show how little political influence is possessed by the medical profession; and should the members returned by the Universities be abolished, as is threatened amongst coming reforms, medical men will have fewer means than ever of having their just claims stated in Parliament.

The Mediterranean Shores of America. Southern California: Its Climatic, Physical, and Meteorological Conditions. By P. C. REMONDINO, M.D. Fully Illustrated. Philadelphia and London: F. A. Davis Co.: 1892.

ACCORDING to Dr Remondino, California possesses no less than six varieties of climate, and it must be a remarkably fine health resort. We have a purely insular climate, a peninsular climate, a coast climate, a foot-hill and valley climate, a mountain climate up to an altitude of 9000 ft., and, lastly, a desert climate, varying in altitude from 360 ft. below sea-level to 2500 ft. above. Any one wishing a brief account of the main features of the climatology of Southern California will find them accurately stated in this book. As a health resort for phthisical patients, it would seem that this country is admirably adapted.

International Medical Magazine. A Monthly, devoted to Medical and Surgical Science. Edited by JUDSON DALAND, M.D. Vol I., No. 1, February 1892. Philadelphia: J. B. Lippincott Company, Publishers.

THIS is a magazine run by the publishers, who say in the preface that "the need of a monthly journal, whose dignified tone, liberal international spirit, and practical teachings shall clearly reflect the best thought and work of the medical world, has long been recognised." The contents in this, the first, volume comprise seven original papers, all by Americans, of which the one entitled "Observations on 'Koch's Lymph,'" by Joseph Jones, is as interesting as any, seven clinical lectures—five delivered by Americans, two by Frenchmen—on various subjects, and numerous notes and reviews on current medical topics. The journal is well got up, and the charts and illustrations neatly printed. A note at the end of the volume announces that all manuscript will be liberally compensated for, which may tend to make this, the latest "International," a success.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXI.—MEETING X.

Wednesday, 1*st June* 1892.—Mr JOSEPH BELL, *President, in the Chair.*

I. EXHIBITION OF PATIENTS.

1. *Dr John Thomson* showed—(*a.*) One of the cases of CONGENITAL LARYNGEAL STRIDOR about which his paper was written; unfortunately it was the least typical of his cases. The infant, a girl, aged eleven weeks, had been noticed to breathe in a noisy way since a week after birth. The "stridor" was less loud than in the other cases seen, and the intermissions were longer and more frequent. The noise was, however, fairly typical when it was present, and it varied under different conditions just as in more marked cases.

(*b.*) A little girl, aged a year and eight months, with UNEQUAL DEVELOPMENT OF THE LOWER EXTREMITIES, the right lower limb being a third of an inch longer than the left; the right thigh one inch, and the right calf one quarter inch larger in circumference than the same parts on the other side. The child was otherwise remarkably well developed, and the rest of the body quite symmetrical. The difference was first noticed about a year ago. The temperature, consistence, strength, and reflexes of the two lower limbs seemed the same. The case was regarded as probably one of simple hypertrophy of the right limb.

2. *Dr Shaw M'Laren* showed a TUMOUR of the SCAPULA, and the patient from whom it had been removed.

II. EXHIBITION OF SPECIMEN.

Dr P. M'Bride showed a TUMOUR removed from the anterior extremity of the right vocal cord.

III. EXHIBITION OF PREPARATION.

Dr W. Allan Jamieson showed specimens of various soaps, and remarked, that in an age when the word "Soap" meets the eye at every turn, and when a well-known firm of soap-makers could announce that they had spent in one year more than £120,000 in advertising, it was especially needful that the kind employed should be that which is suited to the skin. It has been shown that many of the soaps in common use are alkaline ones, and as such are injurious. The superfatted soap introduced by Unna is excellent, yet there is no good reason why we should have to go to Germany to get our soap. At my suggestion Messrs Duncan & Flockhart have prepared, under the able direction of Mr D. B. Dott, a soap which is certainly superior to any superfatted soap which I have tried. This, registered as "*Baumol superfatted skin soap*," is made of the purest fat, contains no cocoa-nut oil, nor any objectionable ingredient, and is not only perfectly neutral, but is superfatted to the extent of three per cent. It will be found to keep well, to be most pleasant in use, reasonable in price, and for all toilet purposes perfect, but "it won't wash clothes." As shaving has again by revolution of time come into fashion, Messrs Duncan & Flockhart have prepared a suitable stick. But a soda soap like this does not cleanse the skin as one with a potash basis does. I have here a superfatted potash soap, which in diseased conditions demanding the employment of a soap to remove adventitious products leaves nothing to be desired. It cleanses the skin, yet after its use the surface remains soft, smooth, and polished. It is a semi-solid soap, but Buzzi has lately drawn attention to fluid soaps, and here are two fluid soaps prepared by the same firm—one neutral, one superfatted with lanoline. The neutral is clear and limpid, the superfatted a trifle cloudy. Should an alkaline soap be desiderated, then one can with ease be prepared by adding four per cent. of pure carbonate of potash, and thus a soap of definite and mild alkalinity is obtained. Such an one resembles Hebra's alkaline soap spirit, but possesses many advantages over that rather crude compound. These soaps have the superiority over solid ones that an exact quantity can be used. They are serviceable in carrying out the new soap treatment as contrasted with the old. The old consisted in removing by a strong alkaline soap all the crusts, scales, or debris, but along with this the lubricating fat of the skin, then replacing the latter by an astringent and oleaginous salve. The modern consists in incorporating with a neutral or superfatted soap—hard, soft, or fluid—the desired ingredient, and applying this, plain or diluted, to the skin. As an example I have here a fluid tar soap, which promises to be a valuable adjunct to our armamentarium in the treatment of psoriasis. For an infinity of other kinds I must refer you to the writings of Unna, Eichhoff, and Buzzi.

IV. Original Communications.

1. *Dr P. M'Bride* read his paper on SOME QUESTIONS WITH REGARD TO TUBERCULOSIS OF THE UPPER AIR PASSAGES, which appeared at page 119 of this Journal.

Dr W. Allan Jamieson congratulated Dr M'Bride on his remarkably able and lucid paper. Personally he had comparatively little experience of tubercular affections of mucous surfaces. He had seen the hard palate sometimes, the gums, especially of the upper jaw, frequently attacked by lupus. In the latter region there were apt to be exuberant granulations and superficial ulcers. The condition was an obstinate one, the unhealthy secretions of the mouth combined with the disturbance caused by mastication baffled efforts at cure. Tuberculosis of the skin, however, offered many analogies to that of the mucous membranes. Miliary tuberculosis of the skin was very rare in his experience. It tended to ulcerate rapidly; this he thought might be due to the fact that the bacilli were abundant as compared with lupus. Their quantity rather than their quality seemed the chief cause of the differences which undoubtedly existed between miliary tuberculosis and lupus of the skin. Lupus vulgaris, though met with elsewhere, was found chiefly primarily on exposed parts, and on regions which were the most vascular,—the face, hands, and feet. There the bacillus had a more congenial soil than in situations where the skin was normally more anæmic. Ulceration did not occur unless there was solution of continuity on the surface, and then was due to the access of pyogenic organisms. Lupus verrucosus was the most superficial of the forms constituting the lupus family, then came lupus vulgaris, and, lastly, the tuberculous gumma commencing deep in the substance of the skin. Of all varieties the warty was the one most plainly due to local infection. It was seen in washerwomen, in those coming in contact with tuberculous sputa from phthisical patients, etc., starting in such often on the knuckles, and so apt to fissure.

Dr M'Kenzie Johnston said that he thought Dr M'Bride's paper one of very great interest, and one which supplied much food for thought. He entirely agreed with all that was said in it as to the identity of lupus and tuberculosis, and also as to the well-marked clinical differences exhibited by them, which, doubtless, were sufficient reason for maintaining the nomenclature as at present. He had been much interested in Dr M'Bride's remarks on the frequent absence of essential ulceration in lupus. This was not quite in accord with the views of other writers, and he should like to reserve his judgment for the present on this point. In future he hoped to examine his cases while keeping this suggestion in mind. With reference to the greater frequency of lupus in the nose and of tuberculosis in the larynx, Dr M'Bride had suggested that this might be due to anatomical differences in the regions under consideration. He would like to offer as a suggestion, that it might be due to physical conditions affecting the multiplication of the bacilli rather than to anatomical conditions. In the larynx, the moisture and warmth, and the difficulty of getting rid of the secretions, were just those conditions which facilitated the growth and multiplication of the organism, and it was in this region that lupus was most rare and tuberculosis relatively most frequent. In the nose, on the other hand, the free play of the atmosphere had the effect of keeping the part dry and cooler, and the greater ease with which the secretions are dried up or removed in this situation is unfavourable to the growth of the bacilli, and in this region lupus is relatively most common. He therefore suggested that the nearer the surface and the more exposed the part is to the atmosphere, the greater would be the chance of the appearance of lupus rather than of tuberculosis. As mentioned by Dr Jamieson, in lupus the bacilli are numerically fewer than in tuberculosis, while in other respects similar, and this would seem to lend some support to his theory.

Dr M'Bride briefly replied, and thanked the members for the kind way in which his paper was received.

2. *Dr John Thomson* read his paper on CONGENITAL LARYNGEAL STRIDOR (INFANTILE RESPIRATORY SPASM), which appears at page 205 of this Journal.

Dr M'Bride described a case of this kind which he had seen a good many years ago, and which he assumed to be a disease etiologically similar to laryngismus, and therefore probably a result of cortical irritation. True, there are differences, but there is also a difference between the ages at which the conditions are met with, and Semon and Horsley have shown that the cortical respiratory representation is more marked in young than in more mature animals. Dr M'Bride begged to doubt whether laryngismus ever occurs during sleep, and quoted experiments by Hooper, Horsley, and Semon, on stimulation of the laryngeal nerves during anæsthesia. Dr M'Bride, on the whole, was inclined to think that the disease was similar in etiology to laryngismus, although differing clinically, and exactly like the inspiratory spasm of adults, of which Dr M'Bride had observed several cases.

Dr James Ritchie said that he felt specially interested in Dr Thomson's paper, because although he had seen very few cases resembling those described this evening, one case had caused him some anxiety. He was summoned hurriedly to see a child, age about three months, in consequence of an attack of laryngismus stridulus. Prior to this attack the mother thought that breathing had been quite natural, but for fully a year afterwards there was almost constant laryngeal stridor varying in degree, aggravated by catarrh of chest or digestive organs. Although stridor was very marked, the child seemed to be quite comfortable. Dr Ritchie thought that the pathology of these cases consisted in a hypersensitiveness of the nerve centres along with a certain amount of peripheral irritation, and that as the tensors and adductors of the vocal cords are stronger than the abductors, inspiratory spasm resulted.

Dr James Carmichael had been much interested in Dr Thomson's paper. He regretted very much, however, that the cases on which the paper was based had not been read. He therefore had not the data from which to offer any criticism of them. With reference to the baby just exhibited by Dr Thomson, he took the opportunity of making a cursory examination of it, and concluded that we had to deal with a more or less continuous or tonic spasm of the laryngeal muscles. He observed, however, that while the child was at the breast the spasm apparently ceased, as there was then no stridor audible. The child was evidently of neurotic disposition and tendency, as the mother during her girlhood had been subject to hysteria. The mother also stated that a fortnight ago the child had a fit, which from her description was attended with tonic contraction of the respiratory muscles generally, during which the breathing stopped and the child became more or less livid. He had always felt some difficulty in classifying such cases as those described, differing as they did in some of their clinical features from typical laryngismus. The age of the child and the peculiar nature of the spasm were elements of distinction in most cases, but he had in his recollection one child during the dentitional period, who was brought to him with typical laryngismus, tonic spasm coming on at irregular intervals with absence of stridulous respiration between the attacks. In this child, however, during the progress of the case the spasm assumed a different nature, being tonic and more or less continuous with stridor, very much as in the baby that had been exhibited to the Society. It seemed that all the physicians who had paid particular attention to these cases were agreed that, pathologically speaking, in typical laryngismus and in laryngeal stridor we had to deal with a similar state, that the disease was essentially neurotic, in its nature depending on functional derangement or instability of the nerve centre. This being the case, he thought we should hesitate before we assumed, from variation in clinical features, that we had a distinct disease to deal with. He was, therefore, of opinion that we were warranted in classing all these cases under the general term laryngismus. As in other nervous affections, similarity, even identity, of pathological state were not inconsistent with variations in clinical features modified probably by the age of the child.

Dr M'Kenzie Johnston said that a condition similar to that described might be occasionally noticed in any healthy infant. It was generally observed after a fit of crying, or some form of emotion, and was probably due to a want of the proper balance of power between the abductors and adductors of the glottis. He wished to ask Dr Thomson if he did not think that this was a temporary form of the more permanent condition met with in his cases. It was difficult to account for the persistence of the affection, and he doubted whether it could be produced by any local cause.

Dr Thomson thanked the members of the Society for their reception of his paper. He did not agree with Dr M'Bride and Dr James Ritchie in thinking that the recurrent spasm was necessarily produced by the presence of some cortical irritation, but thought it much more likely that the want of co-ordination was to be explained by supposing that the higher controlling centres were backward in their development, and that this interfered with their having full control of the lower reflex ones. He also did not think that the mere difference in age could account at all for the difference between the symptoms of the cases under consideration and those of laryngismus. He had seen lately a case of real laryngismus in a very young infant, and the symptoms were just like those in an older child. He disagreed with the inferences which Dr Carmichael had drawn from some statements which the mother of the infant shown had made, and thought that, on more careful inquiry, it would be found that the "fits" the child was said to have had were really only manifestations of acute indigestion from injudicious feeding. He quite agreed with Dr M'Kenzie Johnston that healthy children often made a crowing sound with inspiration when excited, very like that of the condition described,—just as we were accustomed to hear some adults stammer when they were excited, who never did so at any other time.

3. *Dr C. Templeman* read his paper on TWO HUNDRED AND FIFTY CASES OF SUFFOCATION OF INFANTS.

Dr Henry D. Littlejohn complimented Dr Templeman on his paper, and agreed with him as to the continued prevalence of this form of infantile mortality. While the authorities might, in certain districts of the country, be open to the imputation of slackness in dealing with cases, it must be remembered that too often the evidence, even where a post-mortem examination of the deceased is granted, is imperfect, and the medical man finds himself unable to speak with decision as to the exact cause of death. So far as his experience went in Edinburgh and neighbourhood, the Crown always ordered a prosecution—*first,* where a mother while under the influence of liquor went deliberately to bed with her infant after being duly warned as to the risk of so doing; and, *second,* where the body of the deceased showed marked evidence of pressure. The excellent statement of Dr Templeman would undoubtedly have the salutary effect of drawing public and official attention to this increasing source of mortality in the young.

Dr Templeman thanked the Society for the favourable manner in which his paper had been received. In reply to Dr Littlejohn's criticism with regard to the action of the local officials, all he could say was that they acted in accordance with instructions received from the Crown authorities. What he desired to emphasize in his paper was, that if the law was powerless to cope with such cases as some of those described, it should be amended so as to embrace them.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Incompatibles of Antipyrin.—The *Pharmaceutische Centralblatt*, No. 29, 1892, gives the following incompatibles of antipyrin, which precipitate the antipyrin from a concentrated solution:—1. Concentrated solutions of carbolic acid; 2. Tannic acid and preparations containing it; 3. Tincture of iodine; 4. The chlorides of mercury.

The following substances also decompose antipyrin when triturated with it:—1. Calomel forms with antipyrin a toxic combination; 2. Antipyrin is decomposed when rubbed with beta-naphthol; 3. With chloral antipyrin forms an oleaginous liquid; 4. With bicarbonate of sodium it disengages the odour of ether; 5. Salicylate of sodium, equal parts with antipyrin, forms an oleaginous mixture.—(*Therapeutic Gazette*, June 1892.)

Permanganate of Potassium as an Antidote to Phosphorus.—Bokai has presented a communication to the Royal Academy of Medicine at Buda-Pesth, recommending that a solution, in the strength of 1 to 30, shall be used as an antidote in phosphorus-poisoning, on the ground that when this solution comes in contact with the phosphorus the permanganate of potassium causes the formation of orthophosphoric acid, and at the same time there is formed a peroxide of manganese. The orthophosphoric acid so obtained is not toxic. The same reaction occurs in the stomach as in the test-tube, with the exception that in the presence of hydrochloric acid in the gastric juice, peroxide of manganese may develop into the chloride of manganese, rendering still more certain the transformation into orthophosphoric acid. Experiments made by Bokai upon dogs with the permanganate of potassium solutions of the strength of 1 to 5, 1 to 3, and 1 to 2, do not exercise evil effects upon the walls of the stomach. In all the dogs that were poisoned and treated by the permanganate of potassium recovery occurred. But in those which had not received permanganate of potassium death took place (*Revue de Thérapeutique Médico-Chirurgicale*).—*The Therapeutic Gazette*, July 1892.

Europhen.—O. V. Petersen of St Petersburg (*Vratch*, No. 2, 1892, p. 27) tried europhen (a substance produced by the action of iodine on bodies of the phenol series in presence of alkalies) in—(1), 25 cases of circumcision. The wounds were powdered with the pure drug, and dressed with sterilized gauze, etc.,—the dressings being changed every day or two. In all but three rapid healing by first intention was obtained; in the remainder the wounds gave way in from two to four days after the operation (in two from violent erections, in one apparently in connexion with supervening influenza). (2), 20 cases of soft chancres; in 19 of them the ulcers were simply wiped with a piece of absorbent cotton wool, and powdered with the substance from one to five times daily. In one of the cases (a patient with recurrent syphilis) the lesions healed in three weeks, but in the other 18 in from 12 to 15 days. In the twentieth case the application of europhen was preceded by scraping out the chancres. On the removal of the dressing on the fifth day the ulcers were found firmly healed. (3), 7 cases of hard chancres, and (4), 3 of ulcerating gumma, good and fairly quick healing took place. (5), 2 cases of suppurating buboes. After incision and scraping out, the cavity was powdered with europhen, and a compress applied for seven and nine days respectively. Good union resulted, though in one of the cases dermatitis of the surrounding skin occurred. (6), A case of whitlow was cured in seven days (with two dressings). On the whole the author thinks that europhen is a useful substitute for iodoform in minor surgery and venereal ulcers. The smell is not at all strong, and can be disguised by the patient carrying about in his pocket a handkerchief scented with a few drops of lilac (*syringa*) perfume.—*British Medical Journal*, 13th August 1892.

SALIPYRIN IN RHEUMATISM.—A. L. Trechtenberg (*Vratch*, No. 18, 1892) has used salipyrin in eleven successive cases of acute articular rheumatism, with uniformly excellent results. The drug was given in 1 gramme doses five times daily. In one of the cases, which was of an extremely severe nature—the right hip-joint and the left knee and hand being most intensely inflamed—the ordinary anti-rheumatics, including antipyrin (internally and subcutaneously), and salicylate of soda, had been previously tried in vain. After a few doses of salipyrin, pain entirely and permanently ceased, the temperature fell to the normal level, etc., while in a few days all the inflammatory symptoms subsided.—*British Medical Journal*, 30th July 1892.

SALOPHEN.—Frohlich (*Wien. Med. Woch.*, 9th July 1892) says that in not one out of 30 cases did this remedy fail. The pain ceased in from three to four days, and the acute swelling disappeared in six to eight days. Large joint effusions were, however, not influenced. Salophen, like the other salicylic preparations, cannot prevent relapses. In two cases endocarditis appeared during the treatment. The author says that salophen is a prompt and efficient remedy in acute rheumatism, and is to be preferred to the salicylates because—(1), being decomposed in the intestine it does not irritate the stomach; (2), it can be given in large doses and for a long period without unpleasant effect; and (3), it is tasteless. In chronic rheumatism it is not nearly so efficient. In 6 cases only 2 were improved. Salophen has very little action as an antipyretic.—*British Medical Journal*, 6th August 1892.

THE THERAPEUTIC VALUE OF THE SALTS OF CALCIUM.—In *La Médecine Moderne* for 10th March 1892 is an article by Sée upon the value of calcium and its salts in medicine, particularly as compared to the salts of potassium and sodium. After pointing out the great value of calcium in the body in the formation of bones and teeth, and in the maintenance of the alkalinity of various tissues and liquids, he reaches the following conclusions:—That the preparations of potassium and sodium are uncertain and slowly absorbed, and equally slowly eliminated. The iodide and bromide of calcium, on the other hand, are particularly useful when we wish to exercise the effect of the bromide and iodide upon the body. The bromide and chloride of calcium are also applicable in a large number of dyspepsias and stomach disorders, and do not produce the gastric disturbance consequent upon the administration of potassium or other salts. Very good results followed the treatment of gastric conditions by substituting the iodide of calcium for the iodide of potassium and sodium salts. It is given in practically the same dose.—*Therapeutic Gazette*, July 1892.

IPECACUANHA IN UTERINE INERTIA.—Drapes (*Der Frauenarzt*, March 1892) says this remedy in simple atony of the uterus is a powerful agent in producing uterine contraction during the first and second stages of labour. In general, two or three doses of from 10 to 15 drops of the wine of ipecacuanha, given at intervals of ten minutes, produce in a short time marked activity of uterine action, and a rapid birth. It is much better than ergot, as it does not produce tetanic contraction, but only induces normal and regular expulsive efforts.—*Therapeutic Gazette*, July 1892.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

THE CAUSATION OF DERMATITIS HERPETIFORMIS.—Dr George T. Elliot has collected a series of cases of this disease bearing on their neurotic origin. In some there was evidence of the reception of a severe mental or moral shock, in others long continued anxiety or worry. Owing to this fact, and also because in their active pathological course and history they showed a profound subjection to influences of all sorts, which in one way or other expended their effects upon the nervous system, the conclusion has been drawn that the *raison d'être* of the process is a disturbance of some kind brought about in the nervous system by the ætiological factors in existence, and from thence transmitted to the cutaneous surface. When the histories of all the patients prior to the development of the dermatosis are reviewed, there are found, on the one hand, a whole series of factors acting detrimentally upon the general system, but not provoking the disease, and in eight out of ten on the other, the occurrence of some new and different one immediately followed by the process. He draws the conclusions:—1. That in the production of the dermatosis there are two factors in operation—a predisposition of itself not productive of the process, and an existing cause capable of provoking the disease on account of the existence of the former. 2. The predisposition, present by nature, or acquired through the influence of various causes, is constituted by a state or condition other than normal of the nervous system. 3. The exciting factor need not be a constant one, but may be of the most various character, nature, or intensity, its power to call the disease into existence being, however, dependent upon the state of predisposition of the patient. As a result of these conclusions, he would regard dermatitis herpetiformis *not* as a specific disease, always the product of a single or specific agent or cause, but as the outcome of any number of causes of the most various character acting upon an individual possessing a certain degree of predisposition. In treatment there is no remedy, drugs, or forms of treatment which exercise any specific influence on the process. The only good results he has obtained were in those cases in which there was an opportunity of removing or counteracting the ætiological influences which had been at work. Locally ichthyol gave him the best results, and best when prescribed thus:—℞ Ichthyol ammon. grs. xxx. to xl., Ol. Amygdal. dulc., Liq. Calcis, āā ℥ss. (?). This was rubbed in thoroughly and allowed to remain on the surface. The treatment was aided by frequent baths of starch or of starch and bicarbonate of sodium. Such produced comfort, if not directly curative.—*Journal of Cutaneous and Genito-Urinary Diseases*, September 1891, and *New York Medical Journal*, May 28, 1892.

THE PROPER COURSE TO PURSUE WHEN A WOMAN WITH SYPHILIS COMES TO CONSULT YOU, AND ASKS THE QUESTION, "WHAT IS THE MATTER WITH ME?"—This sometimes delicate ethical question is discussed in his lively style by Professor Fournier. The article is well worth perusal, but has been so well summarised by Brocq that we reproduce his analysis. The answer varies with the social status of the patient. If *irrégulière*, that is to say, a woman who is kept as a prostitute, she must be told at once the nature of her ailment, so as to put her on her guard against the danger of infecting others if she persists in maintaining relations with them. If, on the contrary, it is a married woman, the line of conduct is much more delicate. To declare rudely that she is affected with syphilis is to risk, if the husband is the culpable one, causing domestic trouble and separation in the family. If one simply gives a prescription without saying anything, this usually amounts to nothing, for she does not fail to instruct herself upon the real nature of the drugs employed, and thus learns the truth. Theoretically, it is better to place the burden on the husband of keeping from the wife so far as is possible the nature of the disease which she has received from him. The husband must thus be taken into the case, and entrusted with the direction of the care to be taken, and the carrying out of the treatment. For this reason Fournier does not advise giving the patient at the first visit a prescription which could awaken suspicion. A local treatment without mercury should suffice; the patient must be told that there are certain points in the case which do not appear quite clear, and for which reason a conversation with the husband will be necessary, or that there are certain things you wish to recommend to the husband, and ask to have him sent to see you. If the woman is innocent, that is to say, if she has had relations with her husband alone, she will readily comply with your request. From this time on you have only to come to an understanding with the husband, keeping as much as possible from the knowledge of the wife the real nature of her complaint. However, too much secrecy cannot be expected, for after a certain period of this prolonged and mysterious medication, the woman begins to suspect the truth, but the object has been already obtained, scenes of violence have been avoided, which in the commencement would have been precipitated by a sudden discovery of the true nature of the disease, and usually regrettable separations and divorces are avoided. But to act as has been suggested we must be quite sure of our premisses. We must be assured that it is from the husband alone, and not from some other that the contagion has come, for in the opposite case it would be the same as saying to the husband, "Your wife has syphilis, and as you haven't it, she must have contracted it from some one else." So as not to commit such a blunder, care must be taken in speaking to the husband before having the full assent of the wife. If she is innocent she will have no reason to oppose the confidence; if she is guilty, that is to say, if she has had relations with other persons, she will without doubt take you at once into her confidence. There are, it is true, instances in which the physician cannot always act in the manner suggested. There are cases where reticence or dissimulation is out of place, useless, nay even dangerous. Such are, for example, where the nature of the disease, become manifest from special circumstances, is no longer deniable: those, moreover, where the imminent gravity of the specific lesion demands urgently recourse to the most active remedies. Still, on the whole, the course suggested will be found in nearly all cases the best in the interests of all concerned.—*Annales de Dermatologie et de Syphiligraphie*, Février 1892.

MOLLUSCUM CONTAGIOSUM.—This disease is one which has always been a source of much interest, and every communication with regard to it receives close attention. A number of cases have come under observation by Dr Graham of Toronto. These, if such were needed, corroborate the evidence already existing as to its contagious nature. One occurred in a negro, and another in a half-breed Indian. This is of interest in connexion with Mr Hutchinson's expressed doubt as to whether the disease ever was met with in the dark races. A peculiar micrococcus was found, but inoculation with it so far gave no definite results. Dr M'Callum investigated the histology, and came to the conclusion that the origin and seat of the disease is in the rete, and not in the sebaceous glands. As to the nature of the so-called molluscum bodies, he gives evidence that these are not independent animal organisms, not psorosperms or coccidia, but that they are degenerated epithelial cells. They are structures in which chromatin, cleidin, and keratin are deposited, and as such must be at the outset passive or dead material. If parasitic, therefore, the organism is still undiscovered.—*Journal of Cutaneous and Genito-Urinary Diseases,* March 1892.

RINGWORM OF REGIONS POSSESSING A THICK HORNY EPIDERMIS (THE PALMS AND SOLES).—To the diseases which affect the palms and soles must now be added ringworm, and Djelaleddin Mouktar of Constantinople has related three most curious cases. In one he found on the sole and near the toes several epidermic elevations, clear yellowish vesicles, the size of small lentils, with but a faint areola, and not unlike dysidrosis. But adjoining these were parts where the epidermic elevation was ruptured in the centre, disclosing a small surface of a violaceous red, surrounded by horny epidermis, separated from the subjacent part and dry. Outside this there was a well-defined, yellowish-red erythematous circle. The disease advanced into the interdigital spaces, and on to the dorsum of the foot, where it resembled ordinary ringworm. The dorsum itched, the sole of the foot did not. The mycelium and spores of the trichophyton were found in the epidermis. In another case the palm was affected. The patient had been a milkmaid. In a third the disease had lasted on the sole for six years, had been regarded as syphilis, and treated energetically as such. The diagnosis must be considered in two periods: 1. At the commencement, when there exist only vesicles; and, 2. When in addition there are red patches with an epidermic collarette. In the early stage it must be distinguished from dysidrosis. In this the vesicles are often more numerous, are usually bilateral, are preceded by smarting, itching, or pain, while the vesicles of ringworm are but little pruriginous. The microscope, however, is the best test. In the second stage we must exclude eczema and pemphigus. But it is from syphilis that the discrimination is most important. It is differentiated from this by the pliancy of the subjacent derma, which wants the glossiness and the neoplastic infiltration usual in syphilides. The distinction may sometimes be made by noting the thickness and extent of the epidermic collarette. In the squamous plantar or palmar syphilide there are never vesicles, and if observation be carried on for some days the eruption of vesicles at the periphery is in favour of trichophytosis. There is the simultaneous presence of the different elements which represent the stages of evolution of the disease (vesicles, macules, small patches, large circular patches, with their collarette), etc.—*Annales de Dermatologie et de Syphiligraphie*, Février et Mars, 1892.

PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P. Ed., F.R.S.E., Lecturer on Diseases of Infancy and Childhood, and on Midwifery and Gynæcology, School of Medicine, Edinburgh.

A Case of Protracted Abortion treated by the Apostoli Method.—Dr Harajewicz relates a case from his private practice in which he employed the constant electrical current as a means of treating protracted abortion. The patient had lost much blood, still suffered from metrorrhagia, and was rapidly losing strength. Various means, including the internal administration of ergot, were employed to check the hæmorrhage, but were without effect, and the author then had recourse to the application of the constant current to the uterus, with antiseptic precautions. Under this treatment a fragment of placental tissue, the size of a pigeon's egg, was expelled, the symptoms disappeared, and the patient made a quick and satisfactory recovery. The writer points out that this method is safer than curetting of the uterus, which is the alternative line of treatment.—*Centralblatt für Gynäkologie*, No. 15, 1892.

Sarcoma of the Female Urethra.—Professor Ehrendorfer records a case of this exceedingly rare occurrence—sarcoma of the urethra. The patient was fifty-two years old, and had noticed for a year and a half an increasing swelling at the meatus urinarius. Three growths were found protruding from the urethra and pushing apart the labia minora. These were excised, and were found under the microscope to be made up of small round nucleated cells in a scanty stroma. The condition showed some resemblance to that known as urethral vascular polypi or caruncles.—*Centralblatt für Gynäkologie*, No. 17, 1892.

Habitual Hydatid Mole Pregnancy.—Dr Nicolas Warman was called to a case of uterine hæmorrhage at the sixth month of pregnancy. The loss of blood had been excessive, and suspecting that the cause was a molar pregnancy, the writer plugged the vagina. After eight hours the plug was withdrawn, and a hydatid mole, weighing about two and a half kilogrammes, was expelled. No fœtus was found. This was the third pregnancy, and both of the previous ones had resulted also in the birth of hydatid moles (Mond-Kälber). The patient had never suffered from bad health, and her husband was likewise strong and healthy.—*Centralblatt für Gynäkologie*, No. 19, 1892.

THREE CASES OF UTERUS UNICORNIS WITH RUDIMENTARY HORN. —Professor Mangiagalli reports three interesting cases of uterus unicornis, in one of which the rudimentary horn became the seat of a conception, in another of a fibroid growth, and in the third of inflammation. In that instance in which there was a large fibroid of the uterine horn there was also absence of the vagina; the growth was removed by laparotomy; bleeding took place afterwards, for which it was necessary to reopen the abdomen, and the patient died from blood loss. In the third case the rudimentary horn was large, impervious, and the seat of inflammation, which also affected the ovary. It was causing trouble, and was removed by median laparotomy. The patient recovered well. Perhaps the most interesting of the three cases was that in which pregnancy had taken place in the impervious uterine horn. The diagnosis of retention of a dead and mummified fœtus in the impervious horn of a uterus bicornis was made, and laparotomy was performed. It was found that the diagnosis had been right; the mass was removed, and the patient recovered. It was noted that in the ovary, which was united to the mass, was a large corpus luteum.—*Atti della Associazione medica Lombarda*, No. 1, p. 29, 1892.

CONTRIBUTION TO THE PRACTICE OF SYMPHYSEOTOMY.—Dr Caruso first narrates two cases in which symphyseotomy was performed for labour in rickety women. In both cases the mothers made an excellent recovery; in one the child was born living, and survived, and in the other it was still-born, with two loops of the cord round the neck. The author then makes some remarks on the technique of the operation, alluding to the rigorous employment of antiseptic precautions, the use of a convex knife, etc.; and gives, finally, a synoptical account of the cases of symphyseotomy performed at Naples since the latter half of the year 1887. The operators were Mancusi, Morisani, Scribelli, Campione, Postiglione, and Caruso himself. All the mothers recovered, but two infants out of the twenty-two were still-born, in one case through coiling of the cord twice tightly round the neck. In five cases the operation was carried out for the second time on the same patient. The indication for the operation was found in the existence of a conjugate diameter of from 6·7 to 8·1 cms. The wound usually healed by first intention. In two cases a vesico-vaginal fistula was made by faulty technique; in another instance there was a uretero-vaginal fistula similarly produced.—*Annali di Ostetricia e Ginecologia,* April 1892.

MACERATION IN A LIVING INFANT.—Dr Schuhl records a case of what has been called maceration in the living infant. The mother of the child had married a second husband, who was syphilitic, and had had first an abortion, then a macerated dead fœtus, and then an infant that breathed for some minutes after birth. This last-named child showed on various parts of the body separation of the cuticle, with at some places a pale rose colour of the underlying derma, at others a dark red appearance. The writer does not consider the possible relationship of the so-called maceration in the infant and the syphilis of the father.—*Archives de Tocologie,* Mai 1892.

General Emphysema following Laparotomy.—A case is put on record by Dr Dudley, in which during the convalescence from laparotomy for double pyosalpinx emphysema appeared. A history of an early attack of pleurisy was not obtained till after the death of the patient. We are at a loss to understand what Dr Dudley means by the following sentence,—"Efforts at vomiting, combined with the natural ugliness of the patient, having resulted in breaking away of the old adhesions, and allowing leakage from the lung."—*New York Journal of Gynæcology and Obstetrics,* May 1892.

Chorea et Epilepsia Gravidarum.—Dr S. Marx relates two cases of chorea in pregnancy, in both of which the mother was primiparous, and the birth of the child followed by recovery from the nervous affection. The first patient had had chorea when a child, along with rheumatism, scarlet fever, and diphtheria; and at about the third month of her pregnancy she recognised that the chorea was returning in a more severe form. The choreic movements were very violent, and all kinds of sedatives were tried. Finally, it was decided to induce premature labour; but uterine pains set in spontaneously, and after some difficulty a five months' fœtus was removed. Thereafter recovery was quick and complete. In the case of the second patient there was no history of rheumatism or scarlet fever in childhood. Chorea commenced at the first month of pregnancy, and went on till the seventh, when, from a fall due to the choreic twitchings, labour came on, and recovery soon after took place. The author then narrates a case which he looks upon as one of true symptomatic epilepsy of pregnancy. Eclampsia was quite excluded. Towards the close of each seizure the fœtal movements became very violent, and soon after birth the infant had convulsions of an epileptic character, and died on the fourth day in one of these convulsions. The patient has since passed through another pregnancy without any return of the epilepsy.—*American Journal of Obstetrics,* May 1892.

Two Cases of Pregnancy and Labour at Term following the Alexander-Adams Operation.—Dr F. W. Johnson contributes to our knowledge of the after-results of the Alexander-Adams operation by narrating two cases in which the round ligaments had been shortened, and in which pregnancy had afterwards taken place with normal labour at the full term. In both cases the operation had been performed for retro-displacement of the uterus with prolapsed ovaries. The examination of the patients after the puerperium showed that the good effects of the shortening of the ligaments had not in any way been undone by the gestation.—*Boston Medical and Surgical Journal*, April 14, 1892.

Cæsarean Section repeated on same Woman after Six Years, followed by Recovery with a Living Child.—Dr Biggar's patient was thirty-four years old, and four feet in height. Her three first infants had been removed by craniotomy, and her fourth, a female, by the Cæsarean section method in 1886. The present was her fifth pregnancy, and by means of laparotomy a living male child, who was christened Cæsar, was born. The father, who was also of small stature, but perfectly formed, had objected to the removal of the ovaries at the first Cæsarean section, and at the second they could not be taken away on account of the intimate adhesions of the abdominal parietes to the entire length of the uterus.—*New York Medical Record*, May 14, 1892.

Dropsy of the Fœtus.—The Rev. Dr Randle records a pregnancy characterized by enormous abdominal distension, which terminated in the birth of an asphyxiated infant with a dropsical abdomen. The mother was thirty-nine years of age, had been married eleven years, and had previously borne three healthy infants. The child's heart was beating at birth, but respiration could not be set up. There was great hydramnios. Mother made a good recovery.—*China Medical Missionary Journal*, December 1891.

OCCASIONAL PERISCOPE ON DISEASES OF THE THROAT, NOSE, AND EAR.

By R. M'Kenzie Johnston, M.D., F.R.C.S.E., Assistant Surgeon for Ear and Throat, Royal Infirmary, Edinburgh; Examiner on Aural and Laryngeal Surgery, Royal College of Surgeons, Edinburgh.

A Collective Inquiry concerning Intubation.—Many papers have been published of recent years containing statistics very favourable to intubation as performed in America, and from these it would appear that this operation is practised much more extensively, and has found much greater favour in that country than in England. However, this method of treatment has many opponents across the water, as may be seen from an instructive paper by Richard B. Faulkner of Allegheny, in which intubation is described as "a most unsurgical procedure." The writer has obtained the opinions of many eminent American surgeons in response to a series of questions; and these, while differing in some cases, still form a strong and unfavourable criticism of intubation. Senn does not approve of intubation for diphtheritic or any other form of septic laryngitis; while Ashhurst says, "It will never supplant tracheotomy, and I am disposed to think that it will be less often resorted to in the future than it is at present." "That intubation is easy is one of the delusions that still exists in regard to the operation" O'Dwyer has written; and Waxham says, "When done by one who is not an expert, intubation is the most brutal and unsatisfactory operation ever devised by man." While a few surgeons think that intubation may take the place of tracheotomy (Lewis Smith, Ingals), many others hold that at the same time facilities for tracheotomy should always be at hand, and almost all agree in thinking tracheotomy preferable in desperate cases of diphtheria.—*Philadelphia Medical News*, 9th April 1892.

MALIGNANT DISEASE OF THE TONSIL.—In works on general surgery, and even in the majority of books specially devoted to the diseases of the throat, but a very limited space, if any, is devoted to malignant disease of the tonsils. This deficiency has been remedied by D. Newman in a most able, exhaustive, and practical paper, which is enriched by details of a number of cases treated by himself, as well as by a copious research into the bibliography of the subject. The disease is generally considered to be a rare one, but Newman has seen and treated so many cases himself that he throws strong doubts on this supposed rarity. He lays considerable stress upon this point, for he holds that an early diagnosis is of the first importance if any operative treatment is to be attempted, and he says that the general practitioner is much more likely to recognise malignant disease of the tonsil at an early stage if he is not led to look upon this disease as of rare occurrence. There are two great divisions of malignant disease in the tonsil as in other regions—the sarcomata and the carcinomata. By far the most common variety of the former is the round-celled or lympho-sarcoma, a virulent disease, in which secondary formations rapidly develop. There is little hope of staying the progress of this variety of the disease, but in the spindle-celled variety the tumour may remain encapsuled for a considerable time and be capable of complete removal. In 52 cases of sarcoma collected by the author, 27 were round-celled sarcomata, while in 23 the exact variety was not recorded. In carcinomatous disease, the lymphatic glands become rapidly involved, and the disease extends quickly to the adjacent structures. Epithelioma of the tonsil seems to be fairly common, for it occurred 24 times in 92 cases of carcinomatous disease collected by Newman. For obvious reasons treatment does not hold out prospect of great success, for, as Newman says, "in very few forms of malignant disease has operative treatment been less successful than in those instances in which the tonsil has been primarily attacked." Out of 144 cases collected by the author only 56 underwent an operation, but with what amount of success we are not told. In the remainder of the cases the disease had advanced too far to admit of any interference. Still, in a few cases it has been found possible to remove the disease and to give the patient an extension of life, which in one of Newman's cases extended to five years after the operation. The point which is therefore of the first moment is to ensure early diagnosis and early operation if the patient is to have the full chance of a recovery. However, in the bulk of the cases it would seem likely that treatment can only be of a palliative nature. This principally lies in the direction of relieving pain, aiding difficulty in breathing or in swallowing, and in controlling the local hæmorrhages which are liable to occur. The author records very fully ten cases which have been under his own care. Two of these were round-celled sarcomata, and all the remainder were epitheliomatous. About one-half of these were not thought suitable cases for operation, in two cases which were thought promising the patient refused to undergo operation, while in at least two cases the results of operation may be said to have been most satisfactory. —*American Journal of Medical Sciences*, May 1892.

CASE WHERE A MASS OF LEAD WAS IMPACTED IN THE TYMPANIC CAVITY AND REMOVED BY THE AID OF METALLIC MERCURY.—The patient, a man of 70 years of age, was carrying some molten lead while on board ship, and by a sudden roll of the ship he was thrown down, and the lead splashed over the side of his head. He was severely burned, and some of the lead ran down his right ear. Six weeks after this he was examined by Mr Marmaduke Shield, who found the patient suffering from an offensive discharge, with constant pain and discomfort in the ear, and total deafness. A mass of metallic lead could be seen filling the ear, which had burned through and destroyed the membrane, and which was accurately moulded to the inequalities of the tympanic cavity. Attempts at extraction were made, but the mass refused to move even under considerable traction. Before proceeding to detach the auricle and chisel away the posterior wall of the bony canal, which seemed the most feasible method of removal of the mass, it was decided to try the effect of solvents upon the foreign body. Liquid mercury seemed to give the best prospect of success, so the patient was laid upon his side and the ear filled with that substance. This treatment was continued, with intervals, for 16 hours, and the ear was then syringed, when the surgeon had the satisfaction of seeing scales of lead, and finally the plug itself, much reduced in size, drop into the basin. This case is of interest not only on account of the novel method of treatment adopted, but also because it shows how a foreign body, even under such unfavourable circumstances, may remain for a long time in the ear without producing more serious trouble, provided it does not produce retention of discharge.—*British Medical Journal*, 30th April 1892.

ON THE TREATMENT OF EMPYEMA OF THE ANTRUM OF HIGHMORE.—The treatment of abscess of the antrum is generally protracted and often unsatisfactory, owing to the difficulty of getting a complete cessation of the discharge after the cavity has been opened. Professor Chiari has recorded 21 cases recently treated by him, and states his experience of the plan of plugging the cavity of the antrum with iodoform gauze, as recommended by Schech. From his cases he draws the following conclusions:—1. In rare cases caused by periostitis of the root of a tooth the empyema may be cured by the extraction of the tooth. 2. Frequent nasal irrigations may cause a considerable amelioration of the symptoms. 3. Injections into the antrum, performed regularly and carefully, often do not bring about a cure, although usually they improve the condition. 4. It is only in recent suppurations that a few injections are likely to effect a cure. 5. Systematic injections are only made with ease and comfort through an alveolar opening, while if made by the opening from the inferior meatus they cause pain, and are difficult for the patient to manage himself. 6. Insufflations of powdered iodoform do not give satisfactory results. 7. The opening from the antrum into the mouth should be kept closed during the course of treatment. 8. The most satisfactory results were obtained by plugging the cavity with iodoform gauze (50 per cent.), for it rapidly dries up the discharge. Further, it need not be done oftener than once a week, and it can easily be managed by the ordinary medical attendant. 9. In order to introduce the gauze-plug it is necessary to drill a hole from 4 to 6 millimetres through an alveolus. The opening through the canine fossa is only made when the patient refuses to sacrifice a tooth, or when it is wished to scrape the cavity.—*Annales de l'oreille et du larynx, etc.*, Juin 1892.

PERISCOPE OF SYPHILIS AND GENITO-URINARY DISEASES.

By FRANCIS CADELL, F.R.C.S. Ed.

HYGIENE AND PHYSIOLOGY OF THE SEXUAL SPHERE, AND THE PHYSICIAN'S RELATION TO THE LAITY AS REGARDS THIS SUBJECT.—This paper by Dr S. B. Elliot is from *The Journal of the American Medical Association*, June 18, 1892. He considers it an outrage on the people that they should be allowed to live, propagate, and bring up children in entire ignorance and darkness as to this the most important of all subjects. In early life, even while a child is yet in its cradle, bad habits are formed of touching and playing with the sexual organs, as a result of improper diet and external physical irritation. Tea, coffee, meats, spices, and confectionery are the principal causes of irritation of these organs at this early age. The author thinks it is the parent's duty to give the children a rightful knowledge of this subject at the proper time, and the duty of physicians to enlighten and advise the parents on such a vital matter. At puberty there is rapid development of the sexual organs; in fact, touching and manipulating are almost instinctively developed. Children must be taught to eat, drink, dress, and exercise hygienically, and be given proper moral instruction. This would greatly tend to make them healthy in body and mind, and fit for the duties and hardships of after life; and they in turn would have well-born offspring. If people who are at all healthy, well mated, and well disposed, by taking advantage of prenatal influence, can have children who will be free from all taint of inherited disease and vice, who will only have the seeds of virtue sown, and still further, can have children who will naturally attain to the very highest in whatever calling they are adapted for, then is it not of the most vital importance that they should be enlightened on this subject? To those who are unfitted to be parents, either from disease, vice, or imperfection, he suggests that information be given how to prevent conception in a proper, hygienic way.

THE CREMASTERIC REFLEX IN VARICOCELE, by Theodore A. M'Graw, M.D.—The following is a summary of this paper:—1. That the pathology of varicocele is variable—cases differing from one another both as regards causes and pathological conditions. 2. In one group of cases the fault lies in the walls of veins, which have become weakened either by injury or from congenital or acquired disease. In this group the cremasteric reflex may be altogether normal. 3. In another class of cases the primary diseases involve either the cremaster or the nervous mechanism by which it is controlled. The muscles may be congenitally defective in volume or abnormal in position, or may be entirely wanting, or, on the other hand, may be either temporarily or permanently paralyzed. Whatever the nature of the original affection, these cases are marked by a deficiency in the cremasteric reflex, which in some cases may be altogether wanting, and in others very weak and uncertain. As the greater proportion of varicocele shows this symptom, it is fair to conclude that the majority of varicoceles are due to affections of the cremaster. It is important that the whole subject should be studied anew in the light of pathological anatomy, and it will be well for those who are so fortunate as to secure autopsies in persons so afflicted to bear the matter in mind.—*The Journal of the American Medical Association*, June 1892.

GONORRHŒA OF THE VESICULÆ SEMINALES (SPERMATO-CYSTITIS), by Dr. F. B. Robinson.—The conclusions arrived at in this paper are:—1. The seminal vesicles are attacked by inflammation, that induces obstruction and causes dilatation. 2. The dilated sacs contain fluids or pus. 3. Gonorrhœa is the principal cause of the disease. 4. The disease of the semen sacs is exactly analogous to those of the Fallopian tubes, and mainly has the same cause. 5. It follows urethritis, and generally exists with epididymitis. 6. It rarely suppurates. But epididymitis also rarely suppurates. 7. It is nearly always diagnosticated as prostatitis. 8. If suppuration occurs, the abscess should be opened, not through the rectum but through the perineum. 9. The vesiculæ seminales may be swollen quite large and yet few adhesions exist around them, as have been seen in autopsies. But this exactly resembles hydrosalpinx. Adhesions vary much in both diseases. 10. A hydrospermato cyst or a pyo-spermato cyst may recover without medical or surgical interference, just as will a hydrosalpinx or pyosalpinx. 11. To diagnosticate disease of the vesiculæ seminales an examination should be made by the rectum. 12. It is in the semen sacs that we likely have a favourable place for persistent remains of gonorrhœa. Post-nuptial sexual excesses re-excite old gonorrhœas into virulent activity. 13. The dilatation of the semen sacs and their inability to retract, or loss of sphincter power, may account for some cases of spermatorrhœa.—*Medical News*, May 7, 1892.

Part Fifth.

MEDICAL NEWS.

University of Edinburgh.—*The following received the Degrees of Bachelor of Medicine and Master in Surgery:*—Robert Edward Adamson, James Allan, George Wayland Ancrum, James Shirras Anderson (M.A.), Robert Henry Armstrong, George Joakim Bagram, Thaddeus Barleycorn Barber, George Fleming Barnardo, Thomas Matthias Bassano, Lewis Beaton Beddie (M.A.), George Bell, Henry Porter D'Arcy Benson, John James Beveridge (M.A.), George Bill, Charles Hubert Bond, Dugald Charles Bremner, John Chalmers Brown, Thomas M'Lachlan Brown, Hablot John Moxon Browne, Alexander Brownlie,* William M'Queen Brunton, David Haitly Burn, Frank Sydney Butler, George Butters, Donald Graham Campbell, William Sibbald Campbell, John Ferguson Carruthers, James Goodfellow Christie (M.A.), Pieter Gideon Cilliers, Frank Herbert Aylen Clayton, George Herbert Cock, Herbert Davis Coles, Anthony Bridges Jesser Coope, Robert Aitchison Corson, Samuel George Davidson (M.A.), Richard Davies, John Lawson Dick, George Dickson, Edward Cyril Dobie, Charles William Donald, Alexander Douglas (M.A.),† William Ernest Dubourg, Charles Cromhall Easterbrook (M.A.),* Daniel Charles Edington,† Frank Leigh Ehrke, John James Evans,† Rufus Easson Evans,† Frederick Macfarlane Fellows, Arthur Fells,† Thomas Fentem, William Fletcher, Ernest George Fortune, James Stewart Fowler,† Martin Hugh Foye, James Alexander Fullarton (B.A.), Edward Blake Garland, William Scott Gibb, William Gordon, William Baxter Gow, Robert Walker Gray,† William Gray, Vincent Green, William Herbert Gregory, Ernest Elias Tidboald Badcock Greville, George Kerr Grimmer (B.A.), Robert Lyall Guthrie (M.A.), Thomas Clement Guthrie, Herbert Howard Hadden, George Halley (M.A.), John Archibald Hamilton, Frederick John Hare (B.Sc.), Leonard Ernest Hardy, Edgar Hawkins (M.A.), Wallace Ellwood Haworth, Alexander Hendry, David Bennie Hewat, Harold M'Donald Hewer, John Russell Higson, Gustave Heuze Hogg, George Home,* Arthur Henry Hopkins, Cornelius John Hugo, George Frederick Hulme, Frank Hope Grant Hutchinson, Alexander Ingram, Louis Godfrey Irvine (M.A.), Sir Baghvat Sinh Jareja, James Hunter Johnston, Robert John Johnston,† George Johnstone, Howell Buckland Jones, Lim Boon Keng,* Robert Knox, James Thomas Currie Laing, William Duncan Lawrie, Robert Murray Leslie (M.A., B.Sc.),*

* Indicates that the Candidate has passed the Examinations with First-Class Honours.

† Indicates that the Candidate has passed the Examinations with Second-Class Honours.

John Ravensworth Liddell, Edward Sydney Littlejohn (B.A.), Percival Vincent Locke, William Forrest Macarthur, Donald Macaulay (M.A.),* James M'Clew, John M'Clymont, James M'Donald, Alexander M'Ewen, James Gray Macindoe, James M'Kerrow, William Harrison Mackinlay, James Maclean (M.A.), John Macmillan (M.A., B.Sc.), Adam Henry Muir Macmorran, George William Falconer Macnaughton,† Philip Oscar Malabre,† Gustav Mann, John Little Martin, George Brand Mathieson, Raymond Maxwell, Alexander Jamieson Meikle, David Melville, Charles Killick Millard, Ahmed Mirza, Alexander Mitchell, George Benjamin Mitchell, Alexander Rae Moon, James Ernest Moorhouse (M.A., B.Sc.), John Morison, Gerhardt Cornelius Munnik, James Hay Murray, Muthyala Govindurajulu Naidu, George Newman, Edward M'Killop Nicholl, John M'Donald Nicoll, Percy Wood Nicol, Athelstane Nobbs, Thomas Edward Nuttall, Lloyd John Hollis Oldmeadow, Charles Parker, William Henry Parkes, David William Horn Paterson, Charles Ross Pearce, George Peterkin, Reginald Ogilvy Petrie (M.A.), William Henry Pimblett, George Wilfred Pollard, Charles Frederick Ponder, George Porter, Robert Proudfoot, William Graham Putnam (B.A.), John Robert Musgrave Rae, Mathew Alexander Reid, William Nathaniel Robertson, Oswald Dykes Robson (M.A.), William Rogers, Henry Armitage Rowland, James Lawson Russell, Peter Wollstadt Schmidt, William Scott (M.A.), Raoul Seheult, William Grant Sellar, James Brownlee Shaw, Peter William Shaw,† Constantine Demetrius Simitopoulos, Alexander Tweedie Simpson, Walter Petrie Simpson, Herbert James Slane, Thomas George Sloan (M.A.), Andrew Scott Smith (M.A.), William Ramsay Smith (B.Sc.), William Somerville, William Spettigue, William Sproule, James Stoddart (B.A.), Alexander Stuart, James Sutherland, Alfred George Talbot (B.A.),† Matthew Wright Talbot, George Templeton,† Cuthbert Thompson, Jas. Livingstone Thompson, Charles Thomson, Henry Torrance Thomson, Walter Tibbits, François James du Toit (B.A.), Robert Meeser Truter, Dnyaneshwar Atmaram Turkhud, Charles Campbell Baxter Tyrie, Andrew Walker (M.A., B.Sc.), John Wallace, James Monteith Walls, Alexander Edward Watson, Douglas Chalmers Watson, James Kenneth Watson, Edward John Weightman, Victor Werdmüller, John Robert Whait, William John White, Harry Whittome, Robert Morris Williams, John Clark Wilson, John Wilford Wilson, Ludovic Unwin Young, Meredith Young, William Young.

University of Edinburgh.—The following are the official lists of candidates who passed the First and Second Professional Examinations at Edinburgh University in July :—*First Professional Examination.*—C. W. Anderson, D. N. Anderson, Frederick Anderson, J. W. Anderson, John Ballantyne, N. D. Bardswell, J. A. Bayne (M.A.), J. E. H. Bennett, J. B. Blaikie, A. B. Blair, W. H. Borrie, F. J. C. Y. Botha, Edwin Bramwell, A. S. Brass, T. A. Brennan, H. S. Brockway, R. M. Broughton, G. S. Brown, H. G. Brown, W. J. Buchanan (B.A.), D. A. Cameron, H. J. Cardale, A. G. Carment, Scott Carmichael, S. H. Carr, W. H. Carse,‡ W. W. Chipman (B.A.), A. W. G. Clark,‡ J. M. Coates, C. B. Crampton, John Crawford, James Davidson, Priyanath Deb, Maurice Dee, Hugh Dewar, Arthur Dickson, J. H. S. B. Douglas, Stanley Ducat, William Duncan, C. W. Eames, J. W. Edwards, A. W. Ellis, John Ellul, William Evans, F. B. Feast, A. M. Fleming, C. C. Forrester, G. O. Franzén, Frederick Gardiner, W. A. Gemmell, R. M. Gibson, John Gilmour, C. J. Gorringe, James Gray, A. Y. Greenwood, J. M. Grieve (M.A.), Norman Gunn, R. M. Hall, S. H. Hall, F. A. Hardy, C. M. Hector, George Henderson, G. P. Henderson, John Henderson, J. J. Hewison (M.A.), W. H. Hill, John Hirst, J. F. Holden, George Holliday, I. D. C. Howden, A. L. Husband, D. H. Hutchinson, Robert Irvine, Walter Jagger, J. M. Jeffrey, Laurence Ker, James Kirk, B. L. L. Learmonth, R. M. Leith, William Lillie, R. C. Loney, J. R. Lord, P. C. Lüttig (B.A.), W. L. Lyall, Angus Macdonald, F. B. Macdonald, W. M. Macdonald, John M'Donald, Stuart M'Donald, J. A. Macfarlane, T. H. Macfie, D. M. Mackay, Charles MacLaurin, John M'Master, D. D. M'Neill, A. D. M'Pherson (M.A.), Colin M'Vicar (M.A.), W. R. Mander, J. L. Marjoribanks, J. S. Martin, Joseph Mason, James Massey, G. H. Masson, F. H. Merry, J. A. Milroy (M.A.), F. J. R. Momplé, W. A. W. Moore, H. M. Morton, S. K. Mullick, T. M. Ness, M. N. Nicolson, Robert Owen, A. J. Park, H. C. Pearson, J. P. Peterson, Charles Porter, A. S. B. Powell, W. H. Price, R. G. Ralston, J. A. Rees, William Ritchie, W. T. Ritchie, W. H. Robb, David Roger, J. E. Rosenstein, D. R. Rowlands, A. H. Rutherford, C. R. Scott, W. A. Skinner, F. O. de Souza,

‡ With distinction.

F. S. Stanwell, James Stenhouse, T. H. Stevenson, G. E. Stewart, John Stoddart, W. E. W. Strickland, A. C. Sturrock (M.A.), F. V. Sullivan, F. G. Taylor, H. F. L. Taylor, D. G. M. Teague, F. S. C. Thompson, Robert Thornton, F. W. Twidale, W. A. C. Ussher, J. W. de Vos, Andrew Wallace, Henry Waters, T. E. Watson, David Waterston, James Watt (B.A.), H. G. Waugh, G. A. Welsh, A. E. White, Charles R. White, J. H. White, C. S. Wilkinson, A. E. Williams, H. N. Williams, J. T. Williams, W. O. Williams, W. W. Wood, A. D. Yule. *Second Professional Examination.*—C. H. Adamson, A. C. Ainslie (M.A.), R. Y. Anderson, Harry Armistead, Ayatullah, William Bannerman, F. W. Barton, R. W. Blair, R. St G. S. Bond, C. W. C. Branch, D. J. S. Burt, C. H. H. Cazalet, W. R. Center, D. N. Chatterjee, W. B. Clarke, D. M. Conacher, H. O. Corfield, W. H. Coupland, J. R. Crease, E. A. Dent, E. P. Dickin, G. A. Dickson, P. G. Edgar, Henry Ferguson, Arthur Foster, G. E. Gabites, W. H. Gaunt, J. R. Gilmour,* Lachlan Grant, James Gray, D. A. Greaves, F. H. Hardman, W. B. Hetherington, J. E. Hewlett, John Hume, T. J. Jehu, Evan Jones, W. H. Jones, John Kippax,* G. C. Laing, John Lawrie, J. L. Leadbetter, J. A. Lee, Donald MacDonald, Andrew M'Neil (B.A.), P. W. MacVean, W. S. Malcolm, J. M. Menzies, T. B. Moore (B.A.), J. M. Morris (M.A.), David Murray, C. J. Murray, F. B. Oliphant, E. L. Owen, J. M. Pereira, E. L. Phillips, G. B. Pieterson, G. R. Plante, S. W. Prowse (B.A.), J. H. Reynolds, C. H. Ridley, F. W. H. Robson, J. E. Rogers, A. A. Ross, C. E. Salt, Henry Scott, W. E. Scott-Moncrieff, J. H. Seon, P. J. Sharp, T. D. S. Shaw, T. R. Sibbald, W. E. Smith, John Sorley (M.A.), A. P. Steavenson, J. W. Sutcuffs, Thomas Taylor, H. W. Vaughan-Williams, J. G. Walker, J. W. T. Walker, E. E. Waters, J. M. Wishart, J. J. H. Wood, R. J. T. Wright (M.A.)

* With distinction.

Royal Colleges of Physicians and Surgeons, Edinburgh, and Faculty of Physicians and Surgeons, Glasgow.—The final examination for the triple qualification took place in July 1892, and out of 103 candidates, the following 59 passed and were admitted L.R.C.P., and S.G.:—William Allan Lloyd-Davies, Abergele; William Wilson, Ormskirk; Jean Fraser Robertson, Edinburgh; Frederick William Pogson, Seacroft near Leeds; Patrick Noonan, Victoria; Alice Marion Umpherston, Lasswade; George Henry Peake, Madagascar; Edgar Francis Eardley Baines, Hampshire; Charles George Rae, Glasgow; Elsie Maud Inglis, India; Percy Thomas Tolputt, Folkestone; Alfred Eugène Berry, Madras; John Marie Ratnayeke, Ceylon; Donald Keith M'Dowell, Montreal; Fairgray Christie, Scarborough; John Augustus Bouck, Chester; John Samuel Martin, Ballynahinch; Haydon Brown, Alford; George Wayland Ancrum, Gloucestershire; William Johnson Langley, County Waterford; Edward Joseph Gilleran, Roscommon; Francis Cubbon Rogers, Cheshire; Robert Roberts Stitt, Birkenhead; Daniel Joseph Murphy, Youghall; John Wallace Collet, Chittagong; Alexander Jamieson Meikle, Inverary; David Donald, Aberdeen; Alfred Gerrard Ginders, Exeter; William Moody, Kennycully; Charles Albert Smith, Leeds; Arthur James Thomas, Toronto; Servaas de Kock, Cape of Good Hope; James Alexander Harbison, Melbourne; Martin Lavin, County Limerick; Thomas Bennet, Clonakilty; Henry Edwin Connor, Derry; Albert Norman, Southampton; Edgar Christian Wynn Hughes-Games, Isle of Man; William Barwise, Wigan; Augustin Benjamin Ryan, County Limerick; John Gordon Harvey, Madras; Andrew John M'Nickle, County Tyrone; Thomas Francis Devane, Cork; Thomas Francis Roche, Mallow; William Brough Arthur, Dundee; Thomas James Selby, Cumberland; John Fallon Colshan, Dublin; Richard Joseph Bodkin, County Galway; Samuel Walter Pitcher, Australia; Andrew Fernie, Gloucestershire; Hugh Parker Williams, Denbighshire; Percy Edgar Overton, Warwickshire; George Thomas Cooke Adams, New South Wales; Adam Dryden, Edinburgh; Samuel Gawn, County Antrim; Charles Ryall, Isle of Wight; James Levell Benson, London; James Aloysius Walsh, Kilkenny; and Herbert Plowden, Weston, Manchester.

Royal College of Surgeons, Edinburgh.—The following gentlemen having passed the requisite examinations, have been admitted Fellows of the College since last publication:—Percy John Wilkinson, L.R.C.S.E., West Kirby, Cheshire; William Smyth Crawford, L.R.C.S.E., Liverpool; James Thomas Moore Giffen, L.R.C.S.E., Belfast; Herbert Andrew Powell, M.R.C.S. Eng., Guildford, and Richard Philip

Brooks, M.R.C.S. Eng., London. The following gentlemen having passed the requisite examinations were admitted Licentiates of the College:—Andrew Watson Munro, Tain; James Cecil Palmer, New Zealand; Alexander Stuart, Kelso; Lloyd Grant Smith, Cheshire; Pochkhánávālá Dorabji Hormasji, Bombay; Charles Scatchard, Yorkshire, and John Edwin Stott, Liverpool. The following gentlemen having passed the requisite examinations were admitted Licentiates in Dental Surgery:—Thomas Nash, Edinburgh; Henry Alexander Matheson, Edinburgh; John Malcolm, Edinburgh, and James Joshua Martin, Bradford.

British Medical Service.—List of Surgeons on Probation of the Medical Staff of the British Army who were successful at both the London and Netley Examinations in July 1892:—

No.	Name.	Combined Marks.
1.	Hinge, H. A.,	5660
2.	M'Naught, J. G.,	5646
3.	Bray, H. A.,	5641
4.	M'Dermott, T.,	5515
5.	Slayter, E. W.,	5341
6.	Thurston, H. S.,	5191
7.	More, L. P.,	5042
8.	Hodgens, C. O'C.,	4944
9.	Tyrrell, A. F.,	4889
10.	Ryall, W. P.,	4851
11.	Jones, T. P.,	4843
12.	Walker, G. S.,	4833
13.	Smyth, W. J.,	4820
14.	Erskine, W. D.,	4807
15.	Thompson, A. G.,	4796
16.	Chambers, A. J.,	4793
17.	Moore, G. A.,	4682
18.	Lewis, R. C.,	4638
19.	Austin, R. F. E.,	4612
20.	O'Reilly, W. H.,	4552
21.	Marder, N.,	4493
22.	Condon, E. H.,	4476
23.	Mansfield, G. S.,	4433
24.	Faichnie, F.,	4399
25.	Read, H. W. K.,	4397

List of successful Candidates for Commissions in the Medical Staff of Her Majesty's Army at the recent Examination in London.

Order of Merit.	Names.	Number of Marks.
1.	Pollock, C. E.,	2815
2.	Mangan, F. M.,	2470
3.	Rivers, J. H.,	2470
4.	Taylor, W. J.,	2450
5.	Longhurst, B. W.,	2385
6.	Farmer, J. H.,	2365
7.	Buswell, F. R.,	2310
8.	Berryman, H. A.,	2295
9.	Symons, F. A.,	2285
10.	Samman, C. J.,	2235

Madagascar Medical Mission.—We have received the Annual Report for 1891 of this Mission. It opens with a short history of medical missions in the island. In 1862 Dr Davidson started the work under the London Missionary Society. In 1864 he opened an hospital, and very quickly gained the confidence and regard of the natives. In 1867 the hospital came into the hands of the Edinburgh Medical Missionary Society. In 1880 the Friends' Foreign Missionary Association took up the work, which had partially lapsed from the retirement of Dr Davidson and his assistant and successor Dr Mackie. Notwithstanding these changes the Mission has prospered, and last year a new and handsome hospital was opened. During the year there have been 615 in-patients and 10,615 out-patients. Of the in-patients more than 100 underwent important operations. It is evident that Drs Fenn and Moss are, by their Christian labours, conferring a very great benefit on the sick and diseased natives of Madagascar.

OBITUARY.

DR W. F. CUMMING OF KINELLAN.

To very few of the profession in Edinburgh was Dr Cumming more than *nominis umbra*, but to those who did know him the announcement of his death will come almost as a personal bereavement. The brave old man, though paralyzed for nearly forty years and latterly only the shadow of his former self, had a personality so original, a simple courage so rare, and a heart so true, that he won both the love and the respect of every one he met. A Scotch gentleman of old family and perfect manners, highly cultured, and full of natural wit, he spent much of his early life in foreign service and travel, in the best of society, and with every opportunity of being a citizen of the world. His latter years of weakness and ill health he spent in a congenial home with his sister and her husband, the late Sir James Coxe, Commissioner in Lunacy. When by their death he was left alone in his beautiful home at Kinellan, he bore the solitude and weariness of increasing years and infirmities with a Christian heroism and patience perfectly marvellous. He had many friends, and all the alleviations that ample means and faithful servants could give him. His summers were spent in the beautiful retreat in Mull put at his disposal by the Duke of Argyle, one of his warmest and most faithful friends. There he died on July 27th, after a very short illness, at the age of 87, fulfilling his own desire that he might give as little trouble as possible to any one. He did not contribute to strictly medical literature, but wrote a book of travels in two volumes, entitled *Notes of a Wanderer*, and also *Notes on Lunatic Asylums in Germany and other parts of Europe* (1852), of considerable value.

The chief feature in his noble character after his patient heroism was his considerate kindness for the poor and the sorrowful. He has left a quaint legacy to the Royal Infirmary of Edinburgh to provide a fund to supply tobacco for those poor and aged patients of both sexes suffering from surgical maladies who are unable to supply themselves with their favourite luxury. In any year in which it is not all spent in tobacco, the remainder is to be spent in extra tea and sugar. He was an excellent classic, devoted to the poetry of Milton, Shakespeare, and Burns, and was a firstrate judge of a sermon—putting in the first rank of all preachers his own minister, Thomas Guthrie.

Part First.

ORIGINAL COMMUNICATIONS.

I.—THE ERYTHEMATA.

By T. M'Call Anderson, M.D., Professor of Clinical Medicine in the University of Glasgow.

The term Erythema implies a simple superficial inflammation of the corium: it is the most trifling of all the inflammations of the skin, but it includes a variety of affections, all of them closely allied anatomically, though many of them are quite distinct, both as regards their etiology and nature.

(*a.*) *Erythema simplex.*—This affection, which may involve any part of the skin, constitutes the early stage of one form of eczema (ecz. erythematodes), and almost all varieties of eczema terminate in it, so that it must be looked upon in the light of a lower grade of inflammatory action, and as dependent upon similar causes.

In the acute stage the skin is the seat of redness which temporarily disappears upon pressure, sometimes accompanied by swelling, and generally by more or less heat; but there is no moisture or appreciable infiltration of the skin, and the redness, as a rule, shades off into the colour of the healthy parts. Unless the inflammation is very extensive or very acute, the constitutional reaction is either trifling or absent. When the acute stage is passed, the redness is less pronounced, and may in great measure disappear, the feeling of heat is accompanied or replaced by itching, and the surface is the seat of furfuraceous desquamation. To this scaly stage the term pityriasis is often applied, but the same name is given to other affections of a scaly nature,—seborrhœa sicca, for example,—so that confusion would be avoided were it possible to discard it.

The shape of the patches and the extent of the eruption vary very much, and it is a common thing to find erythema on some parts and eczema on others,—*e.g.*, erythema of the body and eczema of the head,—thus betraying their common parentage.

Diagnosis.—The diseases most likely to be mistaken for erythema are eczema, syphilis, erysipelas, and urticaria. As regards the first, it is sufficient to recall the fact that erythema is of the same family as eczema, and that the line of demarcation may be said to be passed when, in addition to the above-mentioned symptoms of erythema, infiltration of the skin, exudation on the surface, or crustation is apparent. The diagnostic points in connexion with the other three diseases may best be stated in tabular form.

Erythema.	*Erythema syphiliticum.*
1. Colour usually pink.	1. Tint deeper, in chronic stages coppery, and surface often glazed.
2. Itching or heat present.	2. Very insensitive.
3. Little or no pigmentation left.	3. Surface pigmented for some time after disappearance of rash.
4. No history or symptoms of syphilis.	4. History of infection; and other syphilitic manifestations present—*e.g.*, sore throat, alopecia, gland enlargements, nocturnal pains, condylomata, etc.
5. Yields to simple treatment.	5 Yields readily to anti-syphilitic treatment.

Erythema.	*Erysipelas.*
1. Fever slight or absent.	1. Constitutional reaction well marked.
2. Local symptoms not severe.	2. Local symptoms more grave—skin dusky red, more swelling and burning heat.
3. No vesication unless disease passes on to eczema.	3. Blisters common at the height of the eruption.
4. No distinct, abrupt line of demarcation between healthy and diseased skin as a rule.	4. Edge abrupt and elevated in the advancing stages.
5. Does not usually spread rapidly.	5. Tends to creep along the skin, and rapidly to invade contiguous parts.
6. May attack any part of the surface.	6. Usually the face or head, unless traumatic when the locality depends upon the seat of the wound.
7. Of indefinite duration.	7. Runs a definite course, and terminates usually in from one to three weeks.

Erythema.	*Urticaria* (Nettle-rash).
1. Etiology very varied, and that of eczema.	1. Often some obvious source of irritation—*e.g.*, eating something indigestible.
2. Eruption rarely very transient.	2. Very evanescent, disappearing often in a few hours, although successive crops may prolong the disease indefinitely.
3. Appearance of eruption as already described.	3. Eruption tends to appear in elevated wheals, the centres of which are often white and the edges red.
4. Itching moderate as a rule.	4. Itching usually excessive.
5. Fever usually absent.	5. Often fever in acute cases.

It must be mentioned that urticaria sometimes takes the form of erythematous patches which cannot be distinguished from erythema simplex; but the suddenness with which it comes out, and the rapidity with which it vanishes, should lead one to suspect that it is a member of the nettle-rash family.

While erythema simplex may appear upon any part of the surface, there are three localities in which it is specially frequent, and to which further reference must be made. These parts are the head, the face, and portions of skin which are in contact with one another.

1. *Erythema capitis* (Pityriasis capitis).—This is usually a very chronic affection, one which may attack the head at parts, but which more frequently involves the whole scalp. Unless the eruption is widespread, the face, contrary to what one might expect, usually escapes. It is very annoying to patients, not only on account of the itching which constrains them to scratch the head in season and out of season, but also on account of the scales which often fall in profusion on the shoulders and other parts of the clothing, and because the hair often comes out in great abundance by reason of the interference with its nutrition.

The diseases most likely to be mistaken for erythema capitis are seborrhœa sicca (also often termed pityriasis capitis), psoriasis capitis, and tinea tonsurans.

Erythema capitis.	*Seborrhœa sicca capitis.*
1. Scales brittle ; cannot be kneaded into a ball.	1. Scales not brittle ; can be kneaded into a waxy ball.
2. Consist mostly of epithelial cells without infiltration with oil globules.	2. Crusts consist of sebaceous matter, *i.e.*, epithelial cells infiltrated with oil globules.
3. Skin beneath scales more or less reddened and inflamed.	3. As a rule little, if any, redness under the scales.
4. Itching very marked as a rule.	4. Itching not usually very great.

Erythema capitis.	*Psoriasis capitis.*
1. Whole head affected, or, if patchy, no sharp line of demarcation at edges.	1. Generally in patches, with abrupt and more or less rounded edges.
2. Scales thin, small, and readily detached.	2. Scales thicker and more imbricated, more silvery and adherent.
3. Itching pronounced.	3. Itching not so constant or severe.
4. Eruption, if on non-hairy parts also, presents the typical characters of erythema.	4. Eruption usually on other parts—especially on elbows and knees—when the characteristic appearances are displayed.
5. Usually accompanied by falling of the hair.	5. Hair usually unaffected.
6. No special tendency to relapses.	6. Relapses the rule, especially in autumn and spring.
7. Not hereditary.	7. Hereditary tendency to psoriasis often pronounced.

Erythema capitis.	*Tinea tonsurans* (Ringworm of the head).
1. Generally met with in adults.	1. Only met with in children.
2. Not infectious.	2. Very infectious.

3. Whole head affected, or, if patchy, no sharp line of demarcation at edges.	3. Generally in rounded patches with abrupt edges.
4. Surface reddened, and scales thin and grayish.	4. "Plucked fowl" appearance, and surface often white from fungus.
5. Hairs fall readily, and bulbs atrophied, but otherwise healthy.	5. Many of hairs brittle, twisted, or broken off close to surface, and often white with parasitic dust.
6. No fungus detected in hairs or scales.	6. The tricophyton detected microscopically in diseased hairs and scales.
7. Eruption, if on non-hairy parts, presents the typical characters of erythema.	7. Eruption often on the body in the shape of round patches or circles (Tinea circinata).

2. *Erythema faciei.*—This eruption is apt to be induced by frequent washing with cold spring water: it has a special tendency to appear in spring during the prevalence of east wind (one form of the so-called "spring-blossoms"), and in summer from exposure of the face to a hot sun (Erythema solare). Sometimes it is a chronic affection, but more often it is acute, and comes and goes with the cause which has induced it. When very evanescent it, as well as other varieties of erythema, is often spoken of as E. fugax. It has a special tendency to attack the prominences of the brow and cheeks, the sides of the nose, and the vicinity of the mouth, and patches of it are also often observed upon the neck. It is a source of much annoyance owing to the redness, stiffness, and burning heat in the acute, and to the itching and desquamation in the chronic stage.

3. *Erythema intertrigo.*—The term intertrigo (*inter* between, and *tero* I chafe) has reference to an inflammatory affection at parts where opposed surfaces are in contact with one another—as between the hips, at the flexures of the thighs, in the arm-pits, and underneath pendulous mammæ, as also between the glans and prepuce, and at the vulva, the inflammation being favoured by the heat, moisture, and friction to which the parts are subjected. It is especially apt to occur in infants, in corpulent persons, in those who perspire readily, and during hot weather. It is to prevent such an occurrence in infants that violet powder is so universally employed. The affected surface is not only reddened, but often has a glazed appearance; the itching is often intolerable, and the scratching leads to excoriations and pain. There is no inflammatory exudation, unless the affection, as often happens, passes into eczema (eczema intertrigo), but the epidermis is apt to be macerated, and the surface is often moist owing to the normal secretions which, in a more or less decomposed state, remain on the part.

Other Varieties of Erythemata.

(*b.*) *Erythema strophulus.*—This eruption was described by Willan and Bateman under the name of strophulus, and is a frequent affection in infants as the result of errors of diet, indigestion, teething, or other forms of irritation. It consists of papules, often of considerable size, which are firm, of a vivid or pale red colour, and sometimes interspersed with patches of erythema simplex. The eruption is very itchy. It is very closely allied to, if it be not identical with the affection termed lichen disseminatus in adults. It must, therefore, be considered in the light of an early stage of the papular or lichenous form of eczema, just as simple erythema is the early stage of erythematous eczema. The only disease likely to be mistaken for it is scabies.

Erythema strophulus.	*Scabies* (The Itch).
1. Not contagious.	1. Very contagious.
2. Situation of eruptions produced by scratching depends on the seat of the papules.	2. Eruption produced by scratching, most abundant on forearms, abdomen, and inner sides of thighs.
3. No special tendency to production of pustules.	3. Large pustules on hands, feet, and hips very common.
4. Nipples and penis not affected.	4. Nipples in female, and penis in male, often implicated.
5. No furrows to be found.	5. The furrows (canals) made by the impregnated female detected about fingers, toes, wrists, etc., containing eggs with the female at the end of each.
6. Cured by attention to the digestive organs, etc.	6. Cured by the use of a parasiticide, *e.g.*, sulphur.

(*c.*) *Erythema punctatum*—[Syn. E. scarlatiniforme (Hardy), Roseola scarlatiniforme (Bazin)].—This eruption, which seems usually to be dependent upon digestive derangement, or upon a chill, or a combination of both, often sets in with slight and transient fever, which is followed very shortly by a punctated eruption on the skin, which rapidly spreads until the whole surface may assume a bright red colour like that of a boiled lobster. In a few days this subsides, being followed generally by slight desquamation of the skin. It is unnecessary to describe it at length, because the constitutional symptoms are very similar to those of a very mild attack of scarlatina, while the eruption is almost identical in appearance and similar in duration. The following points should, however, prevent error.

Erythema punctatum.	*Scarlatina.*
1. Usually results from digestive derangement.	1. Results from exposure to the specific poison.
2. Never spreads to others.	2. Very apt to spread to others, unless every precaution is taken.
3. Pulse not much affected.	3. Pulse very rapid.
4. No characteristic appearance of the tongue.	4. The "strawberry tongue" of scarlatina usually observed.
5. Little, if any, sore throat.	5. Angina usually a prominent symptom.
6. No sequelæ.	6. "Scarlatinal dropsy," and "S. bubo," and suppurative inflammation of middle ears, common sequelæ.
7. An attack is no protection against scarlatina.	7. An attack usually protects the system from another.

(*d.*) *Roseola.*—This variety of erythema can usually be traced to the same causes as the last, and may take the form of a transient congestion of the skin, or may pass on to mild inflammation. In any case it occurs in the shape of erythematous blotches varying in size from a pea to a finger-nail, little if at all elevated, and giving a pinkish, mottled appearance to the surface. It is most often observed upon the trunk of the body ; the itching, if present, is usually slight, and there is little if any desquamation.

It somewhat resembles the mottling of the skin observed in typhus, and may be mistaken for syphilitic roseola, and for the rash produced by the administration of copaiba.

Simple roseola.	*Typhus rash.*
1. Dependent upon digestive derangement and the like.	1. Due to a specific poison.
2. Not infectious.	2. Very infectious.
3. Slight, if any, constitutional reaction.	3. Disease sets in suddenly, often with rigor, and eruption appears from 4th to 7th day, there being well-marked fever throughout, which tends in the 2nd week to assume the typhoid type.
4. Eruption consists of pinkish blotches which disappear on pressure throughout.	4. Eruption dusky-red or livid, after a day or two does not completely disappear on pressure, and often becomes petechial.

Simple roseola.	*Syphilitic roseola.*
1. Preceded by digestive derangement or the like.	1. Preceded by chancre, followed in a month or two by the eruption.
2. Pinkish blotches on the affected parts.	2. Dusky-red, or even coppery blotches.
3. Often some itching.	3. No itching.
4. Usually of short duration.	4. May last for many weeks.
5. No other symptoms present.	5. Other manifestations of syphilis, *e.g.*, alopecia, ulceration of mouth and throat, gland enlargements, nocturnal pains, condylomata, papular eruption, etc.

Simple roseola.	*Copaiba rash.*
1. Preceded by digestive derangement or the like.	1. Occurs in those who have been taking copaiba, and odour of the medicine often perceptible in the urine.
2. Eruption generally on trunk, and face usually escapes.	2. Eruption very extensively diffused as a rule, and face and hands especially liable to suffer.
3. Itching slight, if any.	3. Usually intensely itchy.
4. Duration of eruption uncertain.	4. Disappears within a few days of the cessation of the medicine.

(*e.*) *Erythema circumscriptum*—[Syn. Lichen circumscriptus, Lichen circinatus serpiginosus (Wilson); Seborrhœa corporis (Duhring); Eczema seborrhoicum (Unna)].

This eruption is met with almost exclusively on the chest and on the back between the scapulæ, and frequently implicates both parts simultaneously. It commences as minute red or salmon coloured spots or papules, which gradually increase in size, and soon heal in their centres, leaving erythematous rings which have sharp edges, and sometimes present a finely papulated appearance. These rings are often of very small size—3 or 4 lines in diameter; but, especially on the back, they have a tendency gradually to increase until neighbouring rings meet, and the final result is wavy or serpiginous lines of eruption, their long axis being generally at right angles to the vertical axis of the body. The eruption is usually the seat of slight furfuraceous scales, and is often very itchy, especially when the patient is warm and perspiring.

We are very ignorant of its etiology. No fungus has been discovered in the scales, although the appearance of the eruption is suggestive of a parasitic origin. According to Duhring, Colcott Fox, and others, it is a form of seborrhœa. In support of this view it may be stated that the eruptive elements are situated at the orifices of the sebaceous glands, that the skin has often an oily feeling, the scales are more or less fatty, the affection is usually associated with seborrhœa of the scalp, and, in my experience, it almost always occurs in those who do not remove their flannel underclothing at night.

It is a relapsing affection, and in some persons only disappears in summer, to reappear at each succeeding winter.

It may be mistaken for tinea versicolor and tinea circinata, but the following points should prevent error.

Erythema circumscriptum.	*Tinea versicolor.*
1. Eruption red or salmon coloured.	1. Yellowish or brownish.
2. Circular or serpiginous in shape.	2. Rarely any circles, but irregularly shaped patches with minute points of eruption at their edges.
3. Not contagious, and no fungus.	3. Contagious to some persons, and fungus (Microsporon furfur) readily detected.

Erythema circumscriptum.	*Tinea circinata.*
1. A chronic affection in most cases.	1. An eruption of short duration.
2. Usually accompanied by seborrhœa of scalp.	2. Sometimes accompanied by ringworm of head or beard.
3. Not contagious.	3. Very contagious.
4. No fungus to be discovered.	4. The characteristic fungus (tricophyton) discovered in early stage.
5. Eruption on chest and back, and circles usually of small size—symmetrical.	5. Eruption anywhere, and rings more elevated, more scaly, occasionally studded with vesicles, and often of large size—unsymmetrical.

The diagnosis of erythema circumscriptum from pityriasis rosea will be given after the latter affection has been described.

(*f.*) *Pityriasis rosea*—[Syn. Pityriasis rosé (Gibert); Pityriasis maculata et circinata (Duhring); Roséole squameuse (Fournier)].

This affection, first accurately described by Gibert,[1] is by no means a common one, though perhaps not so rare as some suppose, as it is apt to be overlooked or mistaken for other diseases. We know very little with regard to its etiology and nature, although the appearances which it presents are suggestive of a parasitic origin. Indeed, Vidal is of opinion that it is due to a minute fungus which he has named the Microsporon anomæon, but this view has not gained general acceptance, and certainly there is no evidence of its being contagious. It may occur at any age, although it is oftenest met with in children and young adults, and it is more frequent in females than in males, and in those with white and delicate skins. It is seen at all seasons, but probably most commonly in warm weather.

Clinically it is a very definite and distinct pathological entity. A symmetrical affection of gradual or sudden onset, it appears usually first on the front of the chest, especially over the upper part of the sternum and sub-clavicular regions, whence it spreads to the neck, upper arms, trunk, and thighs,—the forearms, legs, head, and face generally escaping, in great part or entirely. Little pale red or rosy spots are developed in successive crops: these are at first the size of pin heads, but they gradually increase until they may have the diameter of a shilling or more, and, as they do so, they heal in their centres, leaving circles of eruption with sharply defined edges; and if, as often happens, neighbouring spots coalesce, variously figured patches result. The eruption, which is the seat of scanty furfuraceous desquamation, is more or less itchy, especially if the patient is heated and perspiring. In the later stages the colour of the eruption changes from rosy-red to yellow or tawny, and pigmentary stains for a time mark the seats of the previous patches. It runs a definite course, the parts first affected being the first to recover, and its whole duration is seldom more than three months, and often only as many weeks.

It may be mistaken for erythema circumscriptum (lichen circumscriptus—seborrhœa corporis), tinea versicolor, tinea circinata, and erythematous syphilitic eruptions.

1. *Erythema circumscriptum* is a much more chronic affection, does not run a definite course, and has a much greater tendency to relapse. It is almost exclusively met with on the chest and back, and usually coincides with seborrhœa capitis. The circles of eruption, too, are often of very small size, the patches have a more papulated character, while the skin has often an oily feeling, and the scales are more or less fatty.

2. *Tinea versicolor* has less of a rosy, more of a yellow or

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[1] "*Traité pratique des maladies de la peau.*" Ed. III., tome i. p. 402 Paris, Henri Plon.

yellowish-brown colour, and, when the eruption becomes confluent, the patches are often very extensive, much more so than we ever observe in pityriasis rosea, while they have no tendency to form circles or segments of circles. The disease is also contagious, though not extremely so, and the fungus (Microsporon furfur) can readily be found in the scales, so that, if we are on our guard, a mistake is impossible.

3. *Tinea circinata* (ringworm of the body) is distinguished from pityriasis rosea by the fact that it is unsymmetrical, that it has no special tendency to commence on the front of the chest, but may appear upon any, especially upon uncovered, parts; that the patches are more distinctly elevated, and the rings often of large size. It is contagious, too, the fungus (tricophyton) being generally found in the scales. Finally, it not uncommonly occurs in those who are suffering from tinea tonsurans (ringworm of the head), or tinea sycosis (ringworm of the beard).

4. *A circinate, erythematous, syphilitic eruption* is easily distinguished from pityriasis rosea if it is borne in mind that it has a more dusky or even coppery tint, and is not the seat of any itching; that it occurs in those who have recently contracted syphilis, and that it almost invariably coincides with other syphilitic manifestations.

(*To be continued.*)

II.—ON BLOOD-LETTING AS A REMEDY.

By Robert Somerville, M.D., F.R.C.S. Ed., Galashiels.

(*Read before the Border Counties Branch of the British Medical Association, 15th July* 1892.)

It must be interesting to inquire how it is that a remedy which fifty years ago was used every day by every medical man should at the present time be used so sparingly and on such rare occasions; for if the practice of our predecessors was right, ours must necessarily be wrong. No theory of a change of type in disease will suffice to reconcile the profuse bleedings of Cullen and Gregory with the pathology and therapeutics of the present day. Such a theory was set up and upheld by able hands, but it could not endure. For careful study of the clinical records of those cases that had been treated by the phlebotomists showed that patients and diseases in the past were wonderfully like those demanding treatment in more recent years; and men were forced to conclude that the change of treatment, effected as it was during a very few years, was due not to any change in the *patient* or his condition, but to a change in the *physician* and in his principles of treatment. The theory of a change of type was shown by Hughes Bennett and others to be nothing but a delusion, supported by able advocacy, and believed in by the best men of the profession.

The treatment of disease by blood-letting has been praised and has been denounced during well-nigh the whole period embraced in the history of medicine. It could never be a matter of indifference: it is an agent of undoubted power. Bleeding, as it was practised fifty years ago, when men took from a vein an eighth part, a sixth part, or even a fourth part of the bulk and weight of the blood in the human body, must have produced a powerful effect either for good or evil, or for both. That such a powerful agent was frequently used to the hurt of the patient, and to the loss of his life, can scarcely be doubted; but it is difficult to believe that there are not cases in which it has proved to be a prompt and powerful remedy. This, however, has been denied by many. In almost all ages there have been men who have refused to see any possible good in blood-letting, and have condemned those who practise it. But, on the whole, they have been the minority.

Blood-letting is a very ancient practice. It is said to have been invented by Podalirius, the son of Æsculapius,—the same man, I presume, who attended the Trojan expedition. At any rate, Hippocrates speaks of it as a thing in his day well known and practised, and he gives directions both for venesection and for cupping. He recommends bleeding in acute diseases of the chest. "If the pain point to the clavicle, or if there be a heaviness in the arm or about the breast, or above the diaphragm, one should open the inner vein at the elbow, and not hesitate to abstract a large quantity." Then again,—"Bleed in the acute affections if the disease appear strong and the patients be in the vigour of life, and if they have strength." At another place he writes,—"Peripneumonia and pleuritic affections are to be thus observed. If the fever be acute, and if there be pains in either side, or in both, and if expiration be attended with pain, if cough be present, and the sputa expectorated be of a blond or livid colour," and so on, "the inner vein of the arm should be opened on the side affected, and blood abstracted according to the habit, age, and colour of the patient and the season of the year, and that largely and boldly if the pain be acute, so as to bring on fainting." He gives this caution,—"If you think it expedient to let blood, see that the bowels be previously settled, and then bleed." Hippocrates bled also in inflamed hypochondria, "where there were strong pains of the liver, heaviness of the spleen and other phlegmasiæ, and intense pains about the diaphragm, diseases connected with retention of humours. All these diseases do not admit of resolution if treated at first with medicine, but venesection holds the first place in conducting the treatment." He adds,—"If the disease be great, and strong purging may also be necessary; but bleeding and purging together require caution and moderation." One cannot help being struck with the fact that in the eyes of Hippocrates purging was quite as dangerous a remedy as bleeding was. It is curious to observe that Hippocrates distinguishes two sorts of quinsy that interfere with respiration—one of the winter and spring that requires venesection, and the other of the summer and autumn, in the treatment of which he says nothing of bleeding. Probably the one was in its nature inflammatory, and the other of a diphtheritic sort. He bled also in apoplexy. "When a person loses his speech in connexion with obstruction of the veins, if this happen without warning or any other strong cause, one ought to open the internal vein of the right arm, and abstract blood more or less according to the habit and age of the patient." He treated head injuries also by bleeding, not as a matter of routine, but when the symptoms showed inflammatory mischief to be threatening.

Such was the practice of Hippocrates, and he has been followed by the greater number of medical practitioners up to the last generation. Many have been bolder than he was in the use of the remedy, some have been more sparing of its use, but for the most part his successors have endeavoured to act according to his principles,—not, however, without protest from a goodly number. Even in the time of the Asclepiades, of whom Hippocrates had been the most illustrious member, Chrysippus made himself remarkable by his resistance to blood-letting, which he disallowed in every case, and by his opposition to the employment of active purgatives, and, indeed, to all active treatment whatever. He was followed in this by his pupil Eristratus, the Alexandrian anatomist, who, like his master, was opposed to blood-letting and the use of active remedies, trusting to diet and the natural efforts of the system. These may be said to be the homœopaths of their time.

It would appear that amongst the Romans for a long time indeed there was little blood-letting. In fact, we are told by Pliny that Rome was for 600 years without physicians. One of the earliest of Roman physicians was Asclepiades of Bythinia. He was by no means a disciple of Hippocrates, for he vilified the opinions and practice of all his predecessors—those of Hippocrates amongst others. He used no active or powerful remedies. He trusted to diet, exercise, and bathing, as well as the liberal use of wine. Evidently there was no bleeding in this gentleman's practice.

In course of time, however, the Romans were bled. C. Aurelianus, though he rarely practised general blood-letting, used topical bleedings in acute diseases. He enjoined strict abstinence, which was carried to such a length as to be perhaps as dangerous as general blood-letting; and in the reign of Vespasian the Hippocratic practice is found to have been quite revived. Aretæus bled, purged, and used active remedies generally; and when we come to the time of Celsus, we find it said of him that though in some cases his treatment may be called an expectant one, "yet there are occasions on which he displays considerable decision and boldness, and particularly in the use of the lancet, which he employed with more freedom than any of his predecessors." The rules which he prescribed for bleeding were not very different from those adopted in the commencement of this, the nineteenth century.

In the time of the Emperor Aurelius Galen lived and wrote. He, like Celsus, practised blood-letting, employing it in acute diseases very much as Hippocrates recommended it, abstaining from its use in patients below the age of fifteen. Knowing what Galen taught, we know the practice of many generations, for his works dominated medicine for twelve centuries at least, during which time it was authoritatively declared that "what was according to Galen, it was unnecessary to write; what was contrary to Galen it was unlawful to write."

There was, perhaps, less bleeding amongst the Arabian physicians than amongst the disciples of Galen. Dr George Balfour tells us that "their mode of practising it was peculiar, for, regarding it as very unfavourable to coction, and as a mere evacuation, they did not practise it during the increment of the fever. While this continued the patient was kept forcibly awake; but when it lulled and the crisis approached, he was bled and allowed to sleep; and no doubt the weary wretches hailed the lancet as the divinest boon of Heaven to man."

During the sixteenth century the remedial value of blood-letting was questioned by many, and notably by Van Helmont, who declared he saw no good result from bleeding, for exudation could not be thereby hindered, while the patient's vitality was lowered, and many evils were brought on by over-bleeding. Other writers contended that blood-letting is no certain remedy for any disease, that its omission is never the cause of death, while many have died from the effects of blood-letting alone; that it should, therefore, never be employed except "when from sudden efflux of blood to a noble part the integrity of its vessels is threatened."

One would have expected that the discovery of the circulation of the blood would have had an important influence on the practice of blood-letting; but, singularly enough, it does not seem to have affected it one way or other. Sydenham bled as those physicians had done who had never dreamed of the circulation as discovered by Harvey. Sydenham, in giving his treatment of pleurisy, says "My sheet anchor is venesection. I bleed from the arm to ten ounces or more on the first day, the same again next day, and the same again on the third day. I even go on to the fourth day; so that unless the patient previously recover, he has, in cases where the pain and other symptoms are very violent, four continuous bleedings." "By means of bleeding the morbific matter becomes my subject, and opening in the arm does the work of a windpipe. Never have I known any mischief from the large detraction of blood, though unskilful men may think otherwise." He had often tried to think out some plan of cure without such an expense of blood, but had failed in finding any treatment of equal efficacy. He bled also in erysipelas and in quinsy; he was unwilling to bleed in gout, but he bled in some kinds of fever. He took blood from the arm in apoplexy, and proceeded to open the jugulars if improvement had not occurred. Sydenham also recommended periodical blood-letting even to people comparatively well. "If a man be threatened with this great danger (of apoplexy), either by having had this disease before, or else by his age and habit of body, together with an imprudent manner of living, he ought, in the first place, to bleed yearly, and that suddenly after the winter solstice (for it is dangerous to delay bleeding till the advance of spring), and the next day let him take a lenient purge, repeating the same every third day, for three or four times. The reason why I would have bleeding precede purgation is, for that there would otherwise be danger that the purge given upon full veins should, upon the tumult it raises in its operation upon the blood and tumours, hasten the mischief it was designed to prevent." We have all heard of the periodical bleedings which were practised in former times, but we may not all have known of the high authority that could be quoted in their favour.

Coming down now to comparatively recent time, it may be useful to get an accurate notion of what phlebotomy was, when it reached its high tide, which it seems to have done in the time of the Edinburgh physicians Cullen and Gregory. By these men and their colleagues it was held that there was but one great cure for inflammation, and that cure was blood-letting. They had no idea of a definite course being run by pneumonia and such like inflammations. Hippocrates seems to have known something of it, but the Edinburgh phlebotomists did not. So they trusted nothing to Nature; their reliance was on the lancet, which they employed with a freedom that is to us most appalling. Cullen writes, "With respect to the quantity of blood which should or may safely be taken away (he is speaking of pneumonic inflammation), no general rules can be delivered, as it must ever depend upon the state of the disease and the constitution of the patient. In an adult male of tolerable strength a pound is a full bleeding. Any quantity above twenty ounces is a large, and any quantity below twelve is a small bleeding. A quantity of from four to five pounds in the course of two or three days is generally as much as such patients will safely bear, but if the intervals between the bleedings and the whole of the time during which the bleedings have been employed have been long, the quantity taken upon the whole may be greater. When a large quantity of blood has been already taken from the arm, and when it is doubtful if more can be safely drawn in that manner, some blood may still be taken by cupping and scarifying. Such a measure may be more particularly proper when the continuance or recurrence of the pain, rather than the difficulty of breathing, becomes the urgent symptom, and then cupping or scarifying may be made as near the pained part as can conveniently be done." Cullen's bleedings were nearly as bold in abdominal inflammation and even in severe colic. He recommended them in measles sometimes, and rather cautiously in scarlatina. Even in gout he practised local blood-letting, and of course he recommended the immediate and free use of venesection in apoplexy.

As an illustration of the bleedings of the Edinburgh school of that time, let me read to you the account of a case by Dr Gregory, which is quoted by the late Professor Alison:—

"A young man came under my care in the clinical ward, who had been ill of a pleurisy for several days. The symptoms were so uncommonly violent, that there could be no doubt about the nature of the disease, the urgent danger, and the only remedy—namely, large bleeding—that could give the patient a chance for his life. The youngest of my pupils must have known all these things just as well as I did. The remedy certainly was not spared; my man underwent three large bleedings within twenty-four hours, but without the least benefit; indeed, he evidently grew worse, and, after the third bleeding, my clerk came to tell me that he seemed to be dying. This was no surprise to me, who had been aware of his great danger from the moment I saw him; but as I was not disposed to give him up without using every effort to save him, I went immediately to the hospital, and finding his strength still entire, though the symptoms of his disease were dreadfully urgent, I instantly ordered another bleeding for him, and stayed to see it performed, and to observe the effect of it. It was the largest I ever witnessed, and much larger than any bleeding I ever prescribed. I expected and wished to have made him faint by that bleeding, for such fainting, I am confident, often does good. (But this, like every other point in physic, has been the subject of keen and endless disputes.) He bore the loss of 32 ounces (a full English quart) of blood *without fainting;* and I durst go no further. Next day I found him worse than ever, but still, as I thought, able to bear another bleeding, which I conceived might give him some chance, though but a very small one, for life. It was tried without delay, and I stayed to observe the effect of it. To insure, as I thought, his fainting, I made him sit erect where he was bled; and in that posture he bore the loss of more than 20 ounces of blood,—making in all 97 ounces that were taken from him in three successive days, but within forty-eight hours. At that time he was seized with hiccup, and I could observe some spasms in his face; so that it might be said, and in fact was said, without exaggeration, that I had bled him into convulsions. One or two of my pupils, who were very attentive to all that passed, took fright, and ran out of the room, believing all was over, and that the man was instantly to die in my hands; and I confess I had my own share of uneasiness for some minutes, though I was not so disconcerted as my pupils were. On laying the man down on his bed the spasms went off as soon and as easily as a fainting fit commonly does; and from that moment he *was in a manner cured;* the violent symptoms of his disease instantly ceased, and without the help of any other remedy he recovered as well as any patient I ever saw in that disease, *and much faster* than such patients commonly do. In that interesting case, if I had stopped short after the third bleeding, and allowed my man to die, which, to the best of my judgment, he must have done in two days, or perhaps in one, I should have had the credit of doing all that could be done to save him. If I had stopped short after the fourth large bleeding and allowed him to die, which I am confident would have been his fate, it would have been a noble subject of dispute whether his disease or my excessive bleedings (75 ounces in thirty hours) had killed him. But if he had died after the fifth bleeding, whether instantly or not, there could have been no dispute at all that I had killed him by such horrible bleeding."

To that opinion we shall all be disposed to say Amen. And there are few of us who will not believe that blood-letting, as it was practised in the time of Cullen and Gregory, did far more harm than could be balanced by the good it did even in well-selected cases. Dr Marshall Hall's book on *The Morbid and Curative Effects of Loss of Blood* was published in the year 1830. From it, even more clearly than from the text-books, we have a vivid picture of what went on in his day. This author believed that blood-letting was the *only* remedy for inflammation, but this belief did not blind him to the all-too evident fact that the remedy was often a dangerous and not seldom a fatal one. He gives many cases where patients died of blood-letting at the hands of the medical man. They did not die from a first-bleeding, but from subsequent bleedings. The effect of the first, and perhaps the second bleedings, was great relief to the symptoms, and apparent mitigation of the disease, but after a time the loss of blood was followed by reaction, giving a false appearance of increased power and energy of the system, and leading the unwary practitioner to repeat the venesection. And this venesection, instead of aggravating the distressing symptoms, which were really due to loss of blood, at the moment relieved them promptly and completely. This relief in its turn suggests, when an attempt at reaction is again set up, the renewed use of the lancet. "In this manner the last blood-letting may prove suddenly and unexpectedly fatal." He quotes an interesting case of this kind from the *Lancet*,—a man treated in one of the London hospitals for broken ribs penetrating the lung. He was a stout, muscular man aged 57. On the day of his injury he was bled first to 18 ozs., then to 20 more. Next day, 18 ozs. of blood were taken away in the morning, 18 ozs. again at noon, 18 ozs. more at night. Next morning he was reported to have passed a good night, but his pulse was quick and jerking, so he must be bled again, and he was ordered to lose 18 ozs. more. The dresser, perceiving what effect the loss of a few ounces had, desisted from drawing any more, but there was a consultation of surgeons thereafter, and the further loss of 20 ozs. was imperative. After this was subtracted the pulse became a mere flutter, and the man only survived a few hours.

He gives another, which I quote in his own words:—"A delicate married person, a week or ten days after confinement of a still-born child, was seized with pain due to inflammation of the uterus. It was somewhat late before appropriate treatment was adopted, but when it was, leeches were applied to the hypogastrium, cupping low in the loins; aperient medicines and strict abstinence were also used. The benefit from cupping over the sacrum was so decided that recourse to the remedy was had twice or thrice a week regularly. The quantity of blood taken by the cupping had frequently been 20 ozs. The patient became after the last cupping affected all at once with sudden and alarming syncope. She gasped, and became convulsed and afterwards slightly delirious. She revived, however, though continuing extremely feeble. On the next morning she was affected with extreme pain of the head, violent throbbing of the temples, slight delirium, and sickness. During the day the pain of the head, the throbbing and the intolerance of light and of sound had increased so much with sickness, feverishness, and a frequent strong pulse, that it was apprehended that inflammation had taken place in the brain." The arm was actually tied up for blood-letting, but the remonstrances of the patient and some other considerations happily led to the abandonment of the measure. She escaped with her life, to suffer for years afterwards from loss of blood.

Marshall Hall quotes a case as given by Dr Abercrombie:—"A lady, aged 25, had been frequently bled on account of symptoms in the head which had followed an injury. Considerable relief had followed each bleeding, but the symptoms had so soon returned as to lead to a repetition of the bleeding at short intervals, and this had been going on for months. When I saw her she was stretched upon a couch, her face of the most death-like paleness, her pulse very rapid and as small as a thread, her general weakness extreme. The mass of blood appeared to be reduced to the lowest point that was compatible with life, but she still complained of frequent headache, violent throbbing of the head, confusion, and giddiness. It was evident that evacuation could be carried no farther, and in consultation with a very intelligent medical man who had the charge of her, it was agreed, *as a last* experiment, to make trial of the opposite system—nourishing diet and tonics. In a fortnight she was restored to very tolerable health."

We may doubt whether venesection in the treatment of inflammatory diseases was really more than palliative. That it gave great relief at the time of its performance is well established. But the necessity of repeating the operation is so much insisted on by the old authorities, that we cannot doubt but that, after the shock of the blood-letting had been got over, the distress of the patient was very often, perhaps generally, as great as ever. We cannot help suspecting that the relief obtained in the first instance was due, not to a remission of the disease, but to the masking of the symptoms effected by the syncope that was induced.

Not only did venesection give relief to the patient suffering from inflammatory fever, but we must hold it as well established that the remedy was much better borne in his case than in the case of a man in health—that the disease produced what the late Professor James Miller used to call a "tolerance of the remedy." And different diseases seemed to have a varying influence in producing this tolerance. Marshall Hall held that for an arachnitis the loss of 40 ozs. of blood, for pleurisy or pleuro-pneumonia the loss of 30 to 35, were moderate bleedings, while cases of bronchitis would bear 15 ozs. only. And there is a remarkable unanimity of opinion as to the influence of habit in making one more able to bear the loss of blood: a man who had been frequently bled in former attacks of illness could be bled again with more freedom than one whose physiological system had not been so trained. The most wonderful instance of this sort that I am aware of is the case of Waterton the naturalist. Whenever he was out of health, whether from surgical injuries or otherwise, he had himself bled, in most cases performing the operation himself, and taking away about 30 ozs. When he was in his sixty-ninth year he subjected himself to two bleedings of that kind within a few days of each other. During his long life he was bled 160 times, and he lived till he was 83. He was a thin, spare man—of the best sort, therefore, for sustaining loss of blood.

In the year 1845 Dr George Balfour of Edinburgh visited Vienna, and found that Dr Joseph Skoda of that city was treating pneumonia without blood-letting, that his recoveries were at least as numerous as those of his contemporaries who bled their patients, and that when the patients had recovered they were much stronger and in better health than those who had been treated by venesection. This reported to the Edinburgh physicians seemed too absurd to be believed, but before long time had elapsed men began to see that their large bleedings, considered hitherto as absolutely indispensable, were generally unnecessary and almost always mischievous, and the treatment of inflammatory diseases in the course of a few years became very much what it is at the present day.

And the question for us is whether this powerful agent is used by us as frequently as it ought to be. That it was abused is sufficiently evident. Even in cases where moderate bleedings would, to say the least, have been harmless, it was pushed to an undue, even a dangerous, and in too many cases even to a fatal extent. Sir Astley Cooper mentions an instance in which 208 ozs. were abstracted from a patient. Some men bled habitually three or four times daily, and it was practised in diseases most unsuited to it. It is stated in one of the editions of Cullen's *First Lines* that it was used by some in the treatment of plague. A Dr Whyte used the lancet very freely in treating that disease, and every one of his patients died. A Mr Stafford states that the first sixty cases of plague appearing in the Island of Malta were bled by the Maltese physicians, and of these sixty, fifty-nine died. After that blood-letting in plague was abandoned. Never let it be said that medical men are not taught by experience.

But there are cases in which blood-letting does good. Hughes Bennett did much to denounce the venesection which had been practised up to his time, and which he himself had used in the early part of his career; but he advocated "small and moderate bleedings, directed to palliate certain symptoms, and especially pain and dyspnœa." He had often been struck, he tells us, with the small loss of blood which will occasion marked relief in cases where large thoracic aneurisms cause these symptoms. A bleeding of but five ounces will often do a marvellous amount of good, where an obstruction to the circulation exists in the heart and lung, dependent on over-distension of the right side of the heart. He held it probable that the relief was due to the diminishing for a time the tension of the whole vascular system; and this temporary relief may give time for the patient to pass from danger to comparative safety.

But, besides such cases, I cannot allow myself to be persuaded that in many inflammatory affections local blood-letting is not a valuable remedy. The application of a few leeches is, in my experience, often followed by such a mitigation of the symptoms that it is impossible to doubt the usefulness of small topical bleedings. In croup, when in the early stage of the disease no relief is obtained from emetics, accompanied by the warm bath and the inhalation of steam, the bleeding from a few leech-bites will often cause the symptoms to yield. It is very doubtful, indeed, whether bleeding from the vessels of the skin lying over an inflamed organ can have any direct effect in depleting the vessels of the organ itself. But it is likely that, from the nervous connexion between the surface and the deeper structures, the condition of circulation brought about by local depletion on the blood-supply of the integument will by reflex action be induced also in the deeper lying structures. There seems as good reason for expecting benefit from local bleeding as from blistering or the application of iodine. I doubt whether venesection is used as frequently as it ought to be in apoplexy and sudden attacks of hemiplegia. I see daily a man going about the streets of our town whom I bled for an attack of hemiplegia nearly thirty years ago. I have never regretted the treatment.

Most of you will have seen and read Dr Macdougall's paper, "On the Remedial Value of Blood-Letting," in which he gives a number of striking instances of great benefit accruing from venesection. In most of the cases the distress and danger of the patient were due to the condition Bennett refers to—"obstruction to the circulation existing in the heart and lung." Though his bleedings were much larger than Bennett recommends, they were not too large for the exigencies of the case or for the benefit of the patient.

The good obtained in this way from blood-letting is set in a very striking light by the researches of certain of the Edinburgh obstetricians on the influence of pregnancy and labour on women who have cardiac disease. In regard to this Berry Hart writes,—" In the case of a pregnant woman with mitral stenosis the advance of the cardiac disease is often rapid, and we get compressed into a few months the pathological changes which it might have taken years to accomplish, so that at the beginning of labour we get such failure of compensation that we have a dilated and weak left auricle, congested lungs, and a dilated right heart, as we often have at the end of pregnancy. When the labour is finished, and free hæmorrhage does not occur, we get returned to the right side of the heart the extra amount of blood before accumulated in the uterine and placental sinuses. The right heart more or less speedily becomes distended and the lungs engorged, so that we may get death with over-distension of the heart, great dyspnœa, threatened death, or sudden pulmonary œdema." He therefore thinks the loss of blood to some extent during the third stage of labour salutary, as getting rid of that extra bulk of blood which, if returned to the systemic circulation, might embarrass cardiac action even in a healthy woman. " I do not wish to seem to think lightly of hæmorrhage, or even to hint that one is not to be most careful in attending to the third stage. I only state what I feel now, that in a normal case the blood-clot in the placenta and membranes, or the teacupful of blood lost in a single gush, is really better out of the patient's systemic circulation and heart."

This reasoning seems sound, and if a moderate bleeding in the third stage of labour is useful in preventing the development of alarming symptoms, we cannot doubt that when such symptoms are developed, as they are in other circumstances, and in a great variety of diseases, the prospect of relief by blood-letting is too good to be neglected.

General blood-letting is not a cure for inflammation. In some few cases it may relieve grave and threatening symptoms, and gain time for a cure by Nature's own therapeutics. But experience seems to show that topical bleeding is not without use in many inflammations. General blood-letting undoubtedly is most valuable in many cases of over-distension of the right side of the heart, and in some cases of apoplectic seizure.

The routine treatment by blood-letting is needless and harmful. Abstraction of blood is to be practised only in exceptional instances. In such the good it can do is great. Let us see to it that we do not let it slip.

III.—CASES ILLUSTRATIVE OF OPERATIVE INTERFERENCE WITH FIBROID TUMOURS DURING PREGNANCY, LABOUR, AND PUERPERIUM.

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(*Read before the Obstetrical Society of Edinburgh*, 13*th January* 1892.)

		I.—*During Pregnancy—Myomectomy.*				
Case.	Name.	Medical Attendant.	Nature of Case.	Period of Pregnancy.	Result of Operation.	
1.	H. D.	Dr Croom.	Subperitoneal pediculated fibroid.	4 months.	Recovery.	Delivered at term.
2.	L. C.	Dr Hunter.	Subperitoneal fibroid.	3 months.	Death.	...
3.	M. F.	Waiting-room	Subperitoneal pediculated fibroid with ovarian cystoma.	5 months.	Recovery.	Delivery at term.
		II.—*After Abortion—Hysterectomy.*				
1.	S. H.	Dr Trotter.	Large fibro-cystic tumour of uterus.	...	Recovery.	...
2.	B. H.	Dr Cameron.	Large fibro-cystic tumour of uterus.	...	Recovery.	...
		III.—*During Labour—Removal per Vaginam.*				
1.	C. F.	Dr Sinclair.	Pediculated fibroid obstructing delivery.	...	Recovery.	...
		IV.—*During Puerperium.*				
1.	E. R.	Dr Kirk.	Submucous fibroid.	Removal.	Death.	...
2.	H. C.	Dr Playfair.	Submucous fibroid.	Removal.	Recovery.	...
3.	L. M.	Dr Sidey.	Submucous fibroid.	Removal.	Recovery.	...

It is but seldom—notwithstanding their great frequency among child-bearing women—that fibroid tumours give rise to any inconvenience during pregnancy, and still less frequently do they require any surgical interference.

The ordinary history of such tumours in the non-pregnant condition is well known, and even in exceptional circumstances, when they are a source of danger to the patient, the method of dealing with them by removal of the ovaries, and in some cases by the continuous current, has rendered their entire removal a comparatively infrequent operation. The behaviour of fibroid and similar tumours during pregnancy is interesting. In over 400 cases of abdominal section I have only had to interfere with ovarian tumours four times during pregnancy, and with fibroids the cases which I now record are all that have come under my notice. The growth of these tumours is often rapid during pregnancy, resulting in interference with the circulation and œdema of the lower extremities. They are a frequent cause of abortion and profuse uterine hæmorrhage, and often by their bulk cause interference with the functions of bladder and rectum. They often alter the position of the uterus, and as a result abnormal presentations of the fœtus and prolapse of the cord are by no means infrequent. Furthermore and specially, abnormality in the uterine contractions is a frequent complication of labour, and the expulsion of the fœtus is often unduly prolonged. As in the case about to be recorded, the presence of a myoma which obstructs labour is similar to a contracted pelvis. Rupture of the uterus in cases of large myomata has been observed, and one case of the kind I have myself recorded. Hæmorrhage during the placental period is often so profuse as to endanger the patient's life, and fibroid tumours of the uterus form one of the most common causes of secondary post-partum hæmorrhage. With regard to the puerperal period, septic infection and abnormal involution are by no means uncommon.

Susserott collected from all sources a series of 147 cases of labour complicated with fibroid tumour; 60 per cent. of these labours were terminated instrumentally.

Case I.—A woman of 35 years of age was admitted to my ward. She had been married five years, and was sterile. She specially sought advice because of much pain in her left side, associated with irregular hæmorrhages. She had not missed a period. For a year past her menstruation had been increasing in quantity and frequency. Her hæmorrhages were less a source of distress to her than the pain in the left side, associated with a hardness and swelling in that region. The swelling and pain had been the subject of observation for over three months.

On examination per vaginam a large semi-solid swelling was felt on the left side, filling up the fornix, and bimanually it was found projecting over the brim of the pelvis. It was tense, about the size of a cocoa-nut, and its superior surface was irregular. A tumour of smaller size, obviously the uterus, was felt to the right side and behind. It was considerably enlarged. The cervix was thick, soft, and slightly patulous. (There was a well-marked souffle all over the pelvic brim.)

Though the continued hæmorrhage was rather against it, the softness of the uterus pointed to pregnancy, and the right side tumour seemed a dermoid ovarian, which had taken on rapid growth.

A more careful examination per rectum under chloroform permitted the detection of a firm pedicle, about as thick as two fingers, passing from the left cornu of the uterus. The conclusion arrived at was that the tumour was a rapidly growing myoma, associated with an early pregnancy. It was clear that the pregnancy—if it were one—could not continue with a tumour of such dimensions, and in that situation, and in any case, the rapid growth of the tumour and the pain demanded interference. Even if it had been justifiable to interfere with the ovaries, which in the case of a pregnant uterus was inadmissible, any attempt at their removal would have been more hazardous than the removal of the fibroid itself owing to their inaccessible position.

The abdomen was accordingly opened, and the tumour exposed. It proved a soft uterine myoma. There was no difficulty in dealing with it by double knot, and at the same time sewing up very carefully the rest of the pedicle and dropping it back. There was enlargement of the uterus corresponding to a two and a half months' pregnancy.

The case gave no further trouble. The hæmorrhages—which were no doubt due to the rapid growth of the myoma causing congestion of the decidua and hæmorrhage from the lower pole of the uterus, as well as attempts at abortion—ceased, and the patient was delivered at seven months.

Case II.—The patient, aged 35, had been married for years, and was sterile. She was sent to me because of great pain in the left side. Her menstruation, which had been previously irregular and profuse, had been suppressed for two months. There was a distinct tumour to be felt over the brim of the pelvis in the left side. It was tender on pressure per vaginam; the tumour could be felt, tender and soft, occupying the entire left fornix. The uterus was enlarged and thrown to the right side. There were no auscultatory sounds. There seemed to be no communication between the uterus and the tumour. The case was diagnosed as a small ovarian tumour, with some peritonitis over it, and pregnancy. On opening the abdomen, the tumour was found to be a large, rapidly growing, soft fibroid attached to the left side of the uterus by a thin pedicle. This was dealt with in the usual way. The operation offered no difficulty whatever. Immediately afterwards, however, the patient succumbed to old-standing aortic disease. No autopsy was permitted.

Case III.—Was sent to my ward as a case of pregnancy complicated with an ovarian tumour. There was no difficulty whatever in diagnosing the ovarian tumour on the right side and the uterus on the left. The only point was that the fundus uteri was more than usually prominent. The pregnancy had advanced five months. The ovarian tumour was removed without difficulty. The cause, however, of the prominence of the uterus became evident, because there was found behind the uterus a fibroid myoma, with a pedicle about the thickness of two fingers—the myoma itself being about the size of a cocoa-nut, very vascular and soft. After removing the ovarian tumour, I also removed the myoma in the usual way by piercing the pedicle and putting a double knot over it, stitching the end of the stump up, and dropping it back into the abdominal cavity. The patient made an excellent recovery, and was delivered at term.

The following two cases were sent to me during the continuance of the pregnancy, and as both present features of interest, I now desire to record them:—

Case I.—Mrs H. had been married for eighteen months and was pregnant of her first child. The pregnancy was sufficiently obvious. It had advanced to about the seventh month, and occupied the left side of the abdomen. On the right side there was a large semi-solid tumour reaching up to the liver and displacing the uterus very much towards the left side. The tumour was painless and had grown coincidently almost with the pregnancy. The patient had observed a slight swelling over her pelvis before her marriage, but this was trifling, and it was only after she became pregnant that her abdomen increased with enormous rapidity. The growth of the tumour and the uterus went on almost *pari passu*. From the rapid growth of the tumour, its position, and physical examination, I came to the conclusion it was a polycystic ovarian tumour. The obvious question then arose, whether to induce premature labour or remove the tumour. I decided upon the latter. Labour, however, set in, and she was delivered of a seven month child, which did not survive. The labour was normal, but immediately afterwards she had a very considerable peritonitis, and the tumour continued to grow with marked rapidity. Owing to the continuance of the peritonitis and the rapid growth of the tumour, I determined to operate within six weeks after delivery. I opened the abdomen and found extensive and recent peritonitis, and instead of having to deal with an ovarian tumour as I had expected, I found a large fibro-cystic tumour; the still enlarged and recently pregnant empty horn of a bicornuous uterus could now be easily made out. The sound showed a single cervix and a double uterine cavity. The left-side cavity, which had contained the fœtus, was still about four and a half inches long; and the right, from which the tumour projected by a pedicle, was a little larger. The two were distinctly separated by a sulcus, and were connected apparently through the cervix uteri only. The tumour was exposed, and first ligatured by the elastic ligature, and afterwards grasped by the Koeberle clamp and the delta wire. The peritoneum was adjusted round the stump, and the patient made a good recovery.

Case II. was sent to me by Dr Cameron of Innerleithen, who in his note with the case said that the patient had a large tumour and was pregnant. On examination I found her a young woman of thirty, married for one year, with a large solid tumour reaching up to her ensiform cartilage. There was neither uterine souffle nor fœtal heart to be heard anywhere. Per vaginam, the cervix, though large, was firm and hard, and as her menstruation had been regular, I was disposed to think that my friend Dr Cameron's diagnosis was wrong. I passed the sound into the uterus and found it of its normal size. I wrote to Dr Cameron, and told him that I was obliged to disagree with him. I was disposed to think that the patient suffered from a large semi-solid ovarian tumour. Nothing in the case led me to suppose that the tumour was anything else. I had all the preparations made for the operation, and a week after my first examination, and the day before the operation, the patient aborted of a four months' fœtus. I need scarcely say that I was surprised, and at the same time rather crestfallen in my diagnosis. The tumour remained after the abortion pretty much as it was before. Three weeks afterwards I opened the patient's abdomen and found that the tumour was a large fibro-cystic tumour of the uterus, almost a counterpart of the previous one, with diffuse peritonitis. After securing the stump of the tumour with the elastic ligature and the delta wire and Koeberle clamp, I examined the pelvis, and found on the right side an ovarian tumour about the size of an ordinary cocoa-nut. This I also removed, and on examining further into the pelvis, I found that the uterus, as in the preceding case, was bicornuous; that while the left horn had contained a four months' ovum, the right horn into which I had introduced the sound was empty and small. The patient made an excellent recovery. She passed, two days after the operation, a complete decidua, apparently from the empty horn. This is specially interesting, as the operation was performed three weeks after the abortion.

These two cases seem to me of importance, first, because of the rarity of a bicornuous uterus. In both cases the left horn was pregnant and the right horn empty. In both cases the tumour was fibro-cystic and growing from the empty horn.

Both were large, the peritonitis recent, the adhesions numerous, and the operation long and tedious. The uterus, further, in both cases had not by any means completely involuted.

The following case illustrates well dystocia from impaction due to a pedunculated myoma:—

I saw the case with the late Dr Sinclair. He had been called by a midwife to a woman, a multipara, who had been in labour for ten hours, and who had made no progress, and was in addition bleeding profusely.

Dr Sinclair found the patient in violent labour, and on examination found a large mass, firm and hard, blocking up the vagina, there being only a space of about half an inch between the tumour and the vaginal wall, through which the fingers could be passed with difficulty. Together we examined the patient. The head could not be reached per vaginam, but could be palpated through the abdomen, apparently of ordinary dimensions. Under deep anæsthesia it was possible to get the fingers beyond the tumour and feel a thick hard pedicle, and round it the rim of the cervix. The head was *not* lying on the tumour, but evidently pressing hard on the neck of the pedicle. It was just possible to touch the head.

Obviously removal of the obstructing mass was the only course to be pursued. We endeavoured to get the ecraseur round the base as far as possible. In this we only partially succeeded, for the tumour was so tense and so completely filled the vagina that we had to be content to grasp the greater portion, and, as was to be expected after cutting so large a surface, the hæmorrhage was very profuse. To stop the bleeding we put on forceps and pulled down the head. After delivery the hæmorrhage continued severe. We found the pedicle, which was long and thick, attached within the cervix. There was nothing for it but to grasp the bleeding stump with forceps, and to pass a needle through it and throw a double knot over it. This entirely stopped the hæmorrhage. The tumour was of course much larger in the vagina than after its removal, and was of the nature of a fibrous polypus of unusually large size. Both mother and child did well.

This is the only time I have met with a similar dystocia during labour. I have had twice to deal with ovarian cystomata as an obstruction. In both cases aspiratory needle and subsequent delivery with forceps were successful both as regards mother and child.

There was very considerable rise of temperature and pulse, and for some fourteen days the patient was distinctly septic, and during that time careful antiseptic intra-uterine douching was carried out. Without this the patient would probably have been lost. Three weeks afterwards Dr Sinclair and I examined her, and curiously enough we found the Tait knot projecting from the cervix.

Lastly, I have to record three cases where fibrous polypi of considerable size, causing profuse hæmorrhage, were removed within three or four days after labour. Two of these I have already recorded in a paper to this Society some years ago. The last is as follows:—

M. S., a multipara of 40 years of age, was delivered after a rapid labour of a full-term male child. She made an excellent recovery for two or three days. On the fourth day she had a profuse hæmorrhage. This continued with such severity that in his emergency Dr Sidey sent for me, being in the immediate neighbourhood. My hand being thoroughly antiseptic, I introduced it through the partially closed cervix, and found a polypoidal mass lying just within the os. After a little trouble and with the aid of an ecraseur the mass was removed. It turned out to be a well-marked fibrous polypus. Careful antiseptic washing was kept up for ten days. The patient made an excellent recovery.

This case along with the two previously recorded present characteristic examples of a rare complication of the puerperium. Judging by the records of the cases recorded, and to which reference has been made in a previous paper, many of these polypi are extruded spontaneously. The presence of such growths during the puerperium is not without grave danger. Sometimes they soften, break down, and decompose, and are the cause of peritonitis, and become the seat of gangrenous degeneration. This is chiefly the case in the submucous fibroid projecting into the cavity of the puerperal uterus similar to those which I have just recorded.

Similar cases are related by Senderling, Yeld, Kiwisch, Wynn Williams, and Duncan. Wynn Williams relates a case where a large submucous fibroid, which obstructed labour, was enucleated and removed in his efforts to break up the child. Weber relates a case in which turning had been had recourse to, and where a tumour as large as a man's fist was removed with the placenta.

As the practical deduction from these we may formulate the rule, that when the tumour is easily accessible, and can be removed without a severe operation in the first few days of the puerperium, such artificial removal ought to be had recourse to in order to prevent the possibility of gangrene and septic absorption. Care must be taken that the whole tumour be removed, in case of the base sloughing and giving rise to septicæmia, as in my first case. If there be any doubt as to the possibility of its entire removal, it had better be left alone, and allow Nature to expel it spontaneously. If, however, the removal involve a severe operation it would obviously be prudent not to interfere. Of course in those cases where the tumour gives rise to septicæmia late in the puerperium, its immediate removal is a matter of necessity. In all cases of removal of these growths in the puerperium, too much stress cannot be laid on the extreme importance of washing out the cavity of the uterus with corrosive daily, until every trace of fœtor has disappeared. In both my cases pieces of slough and very fœtid discharge continued for many days after the removal, and in spite of careful washing out one ultimately succumbed.

IV.—TWO HUNDRED AND FIFTY-EIGHT CASES OF SUFFOCATION OF INFANTS.

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(*Read before the Medico-Chirurgical Society of Edinburgh*, 1st *June* 1892.)

In every town which contains a large proportion of the industrial classes cases of overlaying are more or less common.

In the city of Dundee, during the ten years from 1882 to 1891, no fewer than 399 cases were reported to the police in which infants had been found dead whilst in bed with their parents. Of these I have personally examined 258 children who have died in this way from overlaying. The large number is accounted for to a great extent by the nature of the population, which is mainly industrial. The staple industries are the spinning and weaving of jute and flax. A very large number of women are employed in the mills and factories, and many of them are married and have children.

The population according to the census of 1891 was 153,587. Of these above one-sixth live in houses of one room, and above two-thirds of the inhabitants occupy houses of either one or two rooms. Cases of overlaying are almost entirely confined to this class, and about three-fourths of the cases seen by me occurred in houses of one room. In a large number of instances the parents were of dissipated and dissolute habits, living amidst squalor and filth, with often little or no furniture in the house, which was sometimes even devoid of a bed. The following table shows for each of the years,—the number of cases examined; the number of illegitimate children amongst them, with the proportion of these to the total illegitimate births during the same year; the number of deaths which took place between Saturday night and Sunday morning; the number which occurred during the winter months, from October to March, and also the number which occurred in each month of life.

Year.	No. of Cases.	Illegitimate.	Cases occurring between Saturday night and Sunday morning.	Cases occurring from October to March.
1882	19	7=14·1 per 1000	10	12
1883	26	7=13·3 ,, ,,	16	14
1884	24	8=14·9 ,, ,,	10	11
1885	24	9=16·4 ,, ,,	12	18
1886	28	10=20 ,, ,,	11	22
1887	32	13=26·3 ,, ,,	12	23
1888	28	10=20·9 ,, ,,	13	17
1889	17	3= 6 ,, ,,	10	11
1890	34	9=18·5 ,, ,,	13	19
1891	26	7=15 ,, ,,	11	12
Total	258	83=32 % of the whole.	118=46 %	159=62 %

Of these there occurred in the

1st month.	2nd month.	3rd month.	4th month.	5th month.	6th month.	7th month.	8th month.	9th month.
62	67	66	21	16	13	5	4	4

It will be observed that in all these cases the child was under the age of nine months. The risk of a child being suffocated whilst in bed with its parents is of course greatest in the earliest months of life. As it gets older it is better able to struggle and avert this calamity, and after it has reached the age of nine months the risk of death from this cause seems to be practically *nil.* These statistics show that the liability of an infant to this form of death remains constant during the first three months of its existence, and after that period it rapidly diminishes in every succeeding month.

In cases of overlaying suffocation is produced in one of three ways—

1. By the infant's face being firmly pressed against the mother's breast, thus mechanically obstructing the entrance of air to the lungs.

2. By the bedclothes being firmly placed over the child's face, with a similar result.

3. When the child is placed between its parents, or by the side of one of them, who while asleep turns over upon it, thus causing death by overlaying proper.

The usual history obtained is as follows:—The child is put to bed in its usual health. When the mother retires, or at some other time during the night, she places the child on one of her arms, and puts it to the breast. At that time nothing unusual is observed. The mother falls asleep with her infant still at the breast and resting on her arm, and in the morning when she awakes she finds it in this position dead.

The external appearances presented by the body are chiefly of a negative character. There are no marks of violence to be observed. As a rule there is no flattening of the nose and face from pressure. Post-mortem lividity comes on early, and is specially well marked on that side of the body on which the infant has been lying; the face is placid and calm; the eyes sometimes slightly congested, but not staring; the lips are livid, and the tongue not protruded. Frothy mucus, often tinged with blood, is generally seen about the mouth and nostrils. The hands are sometimes tightly clenched.

Unfortunately in the majority of these cases I have not been permitted to make a post-mortem examination, but those bodies on which I have had an opportunity of making a complete or partial examination presented the usual appearances found in cases of death by asphyxia, viz., a varying degree of congestion of the cerebral membranes—more or less engorgement of the internal organs, especially the lungs and kidneys, and the large thoracic veins, a fluid condition of the blood, which was dark in colour; and generally a distended condition of the right side of the heart, while the left was nearly or altogether empty and contracted (in one case both sides of the heart were completely empty). In about half the cases examined small punctiform hæmorrhages were observed beneath the pleura and pericardium. The larynx, trachea, and bronchi were, as a rule, congested, and contained some frothy, often blood-stained mucus.

The principal causes producing this great mortality from overlaying are,—

1. Ignorance and carelessness of mothers; 2, drunkenness; 3, overcrowding; and, 4, according to some observers, illegitimacy and the insurance of infants.

In many cases parents are not aware of the danger of having their infants sleeping along with them and resting on their arms, and on this account overlaying frequently occurs in a perfectly accidental manner. In other cases, however, parents are quite aware of this danger, but either from carelessness, for convenience to themselves, or from an utter disregard for the child's life, they wilfully allow it to run the risk of being suffocated. Thus I have known several cases in which women have lost more than one child from overlaying.

It has long been notorious that a very large proportion of these deaths occurred between Saturday night and Sunday morning, and early in my official career I was struck by the frequency with which I was called by the police on Sunday mornings to examine the bodies of infants found dead in bed beside their mothers. The fact that no fewer than 118, or 46 per cent., of my cases occurred at this particular time shows that the coincidence is more than an accidental one. The only explanation of this is no doubt that, receiving their week's wages on Saturday, many of the lower classes, among whom these cases are so common, indulge freely in drink, and go to bed more or less intoxicated. Although the parents are generally unwilling to admit this, the evidence of their neighbours is often sufficiently clear to establish the fact.

It has also been suggested as a possible explanation of this striking fact, that on Saturday nights the parents going to bed at a much later hour than usual, more fatigued than on other nights, and with the knowledge that they do not require to rise to their work early in the morning, sleep more soundly than usual, and thus increase the risk of causing the death of their children in this manner. This may have some slight bearing on the point, but from my experience I have no hesitation in affirming that the question of drink is a much more important one, and plays a very prominent part in producing this frightful mortality.

Another important cause is, however, overcrowding. As I have already said, most of these cases occur in one-roomed houses, where frequently father, mother, and two, three, or even as many as five children sleep in one bed, which sometimes consists of a few jute sacks spread out on the floor. Lying on these, with very scanty covering, they huddle together to keep themselves warm, and in this way the suffocation of an infant, so easily accomplished, is not difficult to explain. This helps to account for the fact that 159, or 62 per cent., of my cases occurred during the winter months.

The large number of illegitimate children who meet their death in this way has frequently been commented upon. That 83, or 32 per cent., of my cases belonged to this class is no doubt a striking fact, considering that during the same period the birth-rate of these unfortunates averaged 10·3 per cent. of the total births in our city. But this is easily explained when we consider that these cases are entirely confined to the lowest class of the workers in our mills and factories, who are usually poorly fed, badly clothed, often of dissolute habits, and live in miserable lodgings, while the children themselves are, as a rule, improperly fed and more or less neglected. As a matter of fact, I have been unable to detect any circumstances which give rise to stronger suspicions of criminal culpability in these cases than in others of a similar nature occurring in children of a different class.

The question of the insurance of children and its effect on infant mortality is one which has lately been receiving a good deal of attention, and some observers are of opinion that it has not a little to do with the frequency of overlaying. In the report of the Select Committee of the House of Lords on the Children's Life Insurance Bill of 1890, there is much valuable and interesting information on this point. In the opinion of many of the witnesses examined, especially medical men and coroners, the paltry sum for which their children have been insured has proved too great a temptation to some parents, who have by neglect, if not by more direct and speedy measures, sacrificed their children's lives.

On account of the ease with which overlaying can be accomplished, and the certainty that any criminal intention will escape detection and punishment, it is believed that some parents of the lowest class, who are unwilling to undertake the support and upbringing of their children, are induced to take this means of ridding themselves of what they feel to be a burden, and the small sum of money for which the infant is insured to some society or burial club is considered an additional inducement for them to commit this crime.

In 100 of my cases I made careful inquiries into the question of insurance, with the following result:—In 46 cases no insurance whatever had been effected on the child's life. In the case of 26 children who were insured their parents were not entitled to benefit on account of the policy not having been in force for three months. Under such circumstances some societies occasionally give a gratuity to the parents, but they invariably decline to do so in cases of overlaying. The rest of the cases, 28 in number, were either partially or fully insured, and the parents entitled to sums varying from 7s. 6d. to 45s. In 16 of these 100 cases the child had to be interred at the expense of the Local Authority.

As a rule, amongst that class in which overlaying is most common, only one insurance is effected on the infant's life. The usual premium paid is one penny per week, and from time to time, as the family increases, the insurance is increased to include them all. Many offices do not insure children at all till they are a fortnight old, and the policy must be in force for three months before the parents can derive any pecuniary benefit from the child's death. In other cases, again, the child must be insured for twelve months before the parents are entitled to full benefit. As a rule the maximum amount payable at the age of nine months, when overlaying practically ceases to occur, is from 45s. to 50s., although this is occasionally increased by the parents being members of some local friendly society entitling them to £1 or 30s. on the death of one of their children.

As regards illegitimate children, the majority of insurance offices will not accept them till they have reached the age of three years. It will thus be seen that the amount obtained by the death of an infant at this age is but small, and in most cases insufficient to cover the expenses of a funeral conducted in the plainest possible manner.

It is, of course, open to question whether it is advisable to allow parents to have a money interest on the death of their children, but in these cases the amount obtainable is so insignificant that I do not think that alone would induce any parent to commit the crime of child murder. As a matter of fact, as a result of my investigations I have not been able to see any grounds for believing that this high infantile mortality has any connexion in a criminal sense with the question of insurance.

Can nothing be done to arrest this serious leakage of infant life? There is no doubt that deaths from overlaying are distinctly preventable, and such being the case, the responsibility for its occurrence ought to be fixed on some one. When, however, we come to inquire into the degree of culpability to be attached to the parents, we at once meet with a difficulty. The physical appearances, both external and internal, give us no clue in determining whether the death has been accidental or homicidal. The suffocation of an infant without any marks of violence is such an easy matter, that a medical examination alone is insufficient to bring home culpability to the parents. The ease with which this can be accomplished is well illustrated by the two following cases:—

In the first case, the child was four months old, well nourished, and of healthy appearance. The mother along with her infant had been spending the day in the country, and on returning at night had been driven to within 300 yards of her own door. Before leaving the conveyance, she put her infant to the breast, and wrapped a shawl around it, placing it over its head, as the night was somewhat chilly. The woman was perfectly sober. On arriving at her house she was horrified to find her infant dead.

In the other case, a mature, healthy child, 7 days old, was put to the breast by its mother, who was sitting up in bed and carrying on a somewhat animated conversation with some friends who had called to see her. She was a stout woman, with large, soft, and flabby breasts. She was paying little attention to her infant, and on withdrawing it from the breast, about five minutes afterwards, found it was dead. Both these cases presented the usual appearances of death from suffocation, and this had taken place while the parents were awake, and they were quite unaware of anything unusual going on.

The number of deaths from this cause is such an important factor in our infant mortality that any proposition calculated to lead to their diminution deserves consideration.

To my mind the only safeguard to its occurrence is that the child should be made to occupy a separate cot from its parents or nurse. No doubt with due care a child may be allowed to sleep with its mother without any harm resulting; still the large number of these cases which occur without any apparent wilful carelessness on the part of the mother shows that nothing short of this measure being made compulsory will insure absolute safety to the child. In my opinion, although perhaps savouring somewhat of grandmotherly legislation, we ought to adopt a modification of the German law, which prohibits a child under the age of two years from being allowed to occupy the same bed as its parent or nurse. No doubt such an enactment in the case of the poorest classes might be difficult to enforce, and would entail some hardship and considerable inconvenience, still it would have this salutary effect, that in the case of an infant being overlaid the responsibility for the occurrence would be fixed on the parents.

At present the impossibility of obtaining evidence of direct culpability permits all such cases to be passed over with impunity. However strong the suspicion of criminal culpability may be, and in some cases the conduct of the parents has given grounds for raising grave doubts as to their innocence, it is almost impossible to get evidence of a kind which would be sufficient to obtain a verdict from a jury. This is shown by the fact that in none of these cases did the Crown authorities deem it advisable to order a prosecution.

But even short of this measure, the punishment of parents who can be proved to have gone to bed in a state of intoxication would have a beneficial effect.

We have already our Protection of Infants' Act, which provides that "any person over sixteen years of age, who having the custody, control, or charge of a child, being a boy under the age of fourteen years, or being a girl under the age of sixteen years, wilfully ill-treats, neglects, abandons, or exposes such child in a manner likely to cause such child unnecessary suffering or injury to its health, shall be guilty of a misdemeanour, and on conviction thereof on indictment shall be liable to a fine not exceeding one hundred pounds; or alternatively, or in default of payment of such fine, or in addition to payment thereof, to imprisonment with or without hard labour for any term not exceeding two years." I do not know if this Act could be considered applicable to such cases as I have mentioned, but if not, it should certainly be made to embrace them, for without doubt such drunken parents "wilfully expose their children to unnecessary suffering," and endanger their lives, and ought to be made directly responsible for their death from such a cause as overlaying.

One case to illustrate this. One afternoon, in April 1890, an infant five weeks old was found dead in bed in its mother's arms. The mother had been drinking during the forenoon, and had gone to bed intoxicated about half-past one o'clock, taking her infant with her. Shortly after two o'clock she was seen lying in bed on her right side with her child resting on her right arm, and its face turned towards her right breast. As the child was crying, the mother was awakened, and asked to put her infant to the breast. She did so, and immediately fell asleep. About four o'clock her husband returned, and found her lying in bed in the same position, with her breast bare, and the child close to it. The child was dead, but the mother was not lying upon it. There was some bloody, frothy mucus about its mouth and nostrils. A post-mortem examination showed that the immediate cause of death had been asphyxia.

Now, if the law is powerless to reach such a clear and flagrant case as this, it surely stands in urgent need of amendment, and in my opinion it ought to be amended on lines such as I have already indicated.

V.—THE ANTISEPTIC TREATMENT OF PERNICIOUS ANÆMIA.

By G. A. Gibson, M.D., D.Sc., Assistant Physician to the Royal Infirmary, and Lecturer on the Principles and Practice of Medicine at Minto House, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh, 6th July* 1892.)

Being unable to attend the last meeting of the Medico-Chirurgical Society of Edinburgh, it was not in my power to take part, as I had promised, in the discussion on Transfusion in Pernicious Anæmia. The loss was all my own, and it is a matter of great regret to me that I was prevented from hearing the interesting debate which followed Dr Brakenridge's paper. I have endeavoured from the medical press to ascertain the views which were laid before the Society, and I am indebted to the courtesy of the Secretaries for the offer of this opportunity to submit the remarks I had intended to make on the occasion referred to.

My purpose is but a limited one,—to bring before the Society the views of Dr William Hunter, and to state the results which have in my hands followed the adoption of his recommendations.

Briefly stated, the conclusion to which Dr Hunter has been led is that in cases of pernicious anæmia there is excessive hæmolysis. He has arrived at this opinion[1] from observing that in this disease there is a largely increased excretion of urinary pigments, that blood pigment can be detected in cells obviously of renal origin, and that the urine contains a large increase of iron. The symptoms of the disease being so suggestive of something akin to ptomaine poisoning as to lead him to suspect some toxic bodies, analogous to the cadaveric series, to be the cause of the increased blood destruction, he investigated the excretions with the view of ascertaining if they lent any support to this conjecture. From the excretion of aromatic substances he was able to determine that there was no absolute increase in the amount of putrefaction in the alimentary canal, but from the presence of what seemed to be special diamine bodies in the urine he concluded it to be probable that some special organism was the cause of the blood destruction, acting, no doubt, in the alimentary canal.

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[1] See *The Lancet*, vol. ii. for 1888, pp. 555, 608, and 654; *The Practitioner*, vol. xliii. pp. 161, 321, and 401, 1889; *British Medical Journal*, vol. ii. for 1891, pp. 1 and 81.

The practical suggestions which Dr Hunter makes as the result of his elaborate investigations are, that the diet should be as far as practicable fatty and farinaceous, so as to lessen to as great a degree as possible the liability to blood destruction, and that the medicinal treatment should be to combat the tendencies of the disease in the same direction by means of antiseptics,—that which he particularly recommends being β naphthol.

During the latter part of last winter, when, in consequence of the unfortunate illness of Professor Grainger Stewart, his wards were under my care, I had an opportunity of putting Dr Hunter's opinions to the test of experience, and I shall now, without further preface, lay the results before you.

J. C., aged 55, until lately a tea-planter in Northern India, was admitted to Ward XXII. of the Royal Infirmary, 29th January 1892, complaining of weakness and giddiness, with pains in the head and shoulders. The patient had no hereditary tendencies bearing upon the condition then present. While in India he had suffered once from cholera, and he had also had some attacks of malarial fever. Five years ago he suffered from renal calculus on the right side, at which time his urine was, as he says, like claret. The present illness began, about a month before admission, with weakness, giddiness, headache, and palpitation. As these symptoms became progressively worse, he came to Edinburgh for the purpose of placing himself under treatment.

On admission the patient was found to be 5 ft. 6 in. in height; the weight was 11 st. 6 lb. He was well developed and muscular. His complexion was somewhat lemon-tinted, his lips and gums were pale, as were also the conjunctivæ, and he had some œdema about the ankles.

The patient had little appetite, but he had also little thirst. There were no feelings of discomfort during digestion, but there was obstinate constipation. The teeth were good; the tongue was large, pale, flabby, and indented. There was no change in the size of the liver or any of the other abdominal viscera. The fæces were colourless. The pulse was of low tension, moderately filled, regular and equal, its rate being 74 per minute. There was a distinct apex-beat in the fifth interspace, $2\frac{3}{4}$ in. to the left of the mid-sternal line. At the level of the fourth rib the right edge of the heart was $2\frac{1}{4}$ in., and the left edge $3\frac{1}{4}$ in. from mid-sternum. A continuous venous hum was heard over the veins of the neck, and a systolic murmur of very soft character over most of the precordia, with its maximum intensity in the tricuspid area.

On careful examination of the blood with the Thoma-Zeiss hæmacytometer the red corpuscles were found to number 800,000 per cubic millimetre. Changes in size and shape of the red corpuscles were very obvious, but there was no absolute change in the number of the leucocytes. The spleen and lymphatic glands were of normal size. In regard to the respiratory system, there was a history of frequent attacks of epistaxis. There was no change in the fundus oculi. The urine was pale, and no changes of importance were present in it. The temperature was never at any time abnormal.

That this case was one of pernicious anæmia there could be no reasonable doubt, the only characteristic symptoms of that disease which were absent in our patient being retinal hæmorrhages and dark urine.

For the first few days after admission the patient was treated by means of arsenic in various forms, but this had to be discontinued, as the drug produced great gastro-intestinal irritation, showing itself by vomiting and diarrhœa. He was becoming progressively weaker, and the œdema of his feet and legs was increasing; but his blood, frequently examined, remained until 16th February in the same condition, *i.e.*, it contained 800,000 red corpuscles per cubic millimetre.

On 18th February, in addition to the administration of two grains of the protochloride of iron three times a day, the patient was ordered to take small quantities of the perchloride of iron largely diluted with water.

On 2nd March, although the red corpuscles were 920,000 in number, and his weight had reached 11 st. 9 lb., the patient was so reduced in strength that it was clearly necessary to resort to some other means of treatment. The further use of iron was suspended, and it was resolved, with the permission of the patient, which was freely granted, to have recourse to transfusion of blood.

The operation was accordingly performed by Mr Cotterill on the following day,—six ounces of venous blood, carefully defibrinated and diluted with the usual saline solution, being introduced with every precaution into the patient's right arm. There was but little constitutional disturbance in consequence of the transfusion, and on the 4th March the number of red discs had reached 1,120,000. By the 9th March the number had fallen to 1,000,000, and by the 12th March to 920,000. His energy during this time was steadily failing, the œdema was gaining on him, the condition of pulse and heart was becoming worse and worse. The question now before us was whether to have recourse to repeated transfusions or to attempt some other method of treatment. The patient himself was averse to further transfusion, and this fact weighed with us in coming to a decision.

After taking every circumstance of the case into consideration, we resolved to follow the suggestions of Dr Hunter. For two or three days the patient was fed with artificially digested food, and on the 18th March the use of β naphthol was begun, two grains in pill being administered three times a day.

On the 22nd March the number of red discs was 1,000,000, on the 1st April his weight was found to have fallen to 10 st. 10 lb., and on 2nd April the red corpuscles only numbered 800,000. During the three weeks of treatment by means of the β naphthol a good deal of intestinal disturbance had from time to time troubled the patient, and on the 2nd April a severe attack of diarrhœa set in. Whether the drug was the cause or not was uncertain, as at that time there was an epidemic of diarrhœa in the ward; but the attack was severe and lengthy, as in spite of all kinds of medicines the symptom did not abate until a fortnight had nearly passed away. On the 16th April the number of red corpuscles was 1,600,000, and the colour of the skin and mucous membranes was greatly better than at any time since the patient's admission; the œdema, moreover, had quite disappeared, but his weight, as might be expected, was only 10 st. 1 lb.

On the 19th April the administration of the β naphthol was resumed, but the patient only took two pills daily.

On the 23rd April the number of red discs was 1,700,000, and on the 2nd May it had reached 1,850,000. The patient had improved in every way—his strength had greatly returned, his appetite was much better, and his appearance had undergone much improvement. It was considered advisable that he should leave the Infirmary and live in the country, where he might enjoy fresh air; he accordingly took up his abode in the vicinity of Edinburgh on 4th May.

On the 20th May the red corpuscles were 2,000,000, and on the 26th they amounted to 2,080,000. His weight was 10 st. 8 lb., and his strength much greater, so that he was able to take short walks without experiencing much fatigue. He was now permitted to return to his home in Galloway, and was enjoined to continue the use of the β naphthol, to which was added protochloride of iron in doses of two grains twice a day.

On the 18th June the blood was examined by Dr M'Lelland of Wigtown with Gowers' hæmacytometer, and found to contain 1,840,000 red discs. Although there was thus a diminution in the number of the corpuscles, the patient was still improving in strength and energy.

On the 3rd July his weight had risen to 12 st. 1 lb., the number of the red corpuscles was 2,320,000, and the patient was able, without feeling fatigued, to walk more than four miles.

There are many points in this case somewhat difficult of solution.

It will, no doubt, be suggested that the considerable improvement obtained may have been due to the transfusion of blood. This was, however, followed by such a long period unattended by any gain that it seems to me such a suggestion must be dismissed.

One matter of great interest is that during the period of diarrhœa the red corpuscles were doubled. No doubt the drain of fluid from the patient's alimentary tract would not only remove œdema, but would also relatively increase the red corpuscles. It may possibly be held that the doubling of the corpuscles was simply caused in this way, but it is hardly possible that so noteworthy a change in their number could be thus produced; and I am much more inclined to believe that the explanation must be sought in an antiseptic action on the alimentary canal, coincident with the diarrhœa.

What is more difficult to explain is the falling off in the number of the red discs during the first period of administration of the β naphthol, and the later diminution after the patient's return to his home.

It was carefully considered whether there might not be some malarious influence in the case, and the possibility must be granted. No evidence of parasitic causation could be ascertained.

Such are the facts as to this case which I desire to lay before the Society. They are imperfect in many ways, and more especially in not containing any estimation of the hæmoglobin. This omission is due to the epidemic of influenza, which caused so many changes amongst the Resident Physicians as seriously to interfere with the carrying out of continuous observations.

In order to have a control observation as to the effect of antiseptic substances in cases of anæmia which are probably not progressive and pernicious, I have administered β naphthol to a considerable number of patients. So far, there has been in every instance a noteworthy increase in the number of the coloured corpuscles under the influence solely, as far as I am able to judge, of such agents.

One of these cases may be briefly referred to as an example of the effects produced by β naphthol.

K. S., aged 20, unmarried, and employed as a kitchen-maid, came under my observation on 6th May 1892, complaining of breathlessness and headache.

The patient was pale, and her mucous membranes were blanched, but there was no œdema, and the catamenia had undergone no change. On physical examination of the circulatory apparatus, the pulse was found to be of moderate tension; the heart somewhat dilated, the right border extending to 2 inches from the middle line, and the left to 3½ inches in the opposite direction; there was a distinct venous hum in the veins of the neck; and a soft systolic murmur was audible in the tricuspid and pulmonary areas of the precordia. The blood, examined by means of the Thoma-Zeiss hæmacytometer, was found to contain 1,950,000 coloured corpuscles per cubic millimetre; some of these were slightly altered in outline, but neither megalocytes nor microcytes were present.

The case appeared to be one of simple anæmia, and was selected in order to ascertain what effect the exhibition of intestinal antiseptics would have upon the state of the blood. The drug administered was β naphthol, two grains of which were given in pill form three times a day after food, and no alteration was made on the food, surroundings, or occupation of the patient.

The number of the coloured corpuscles, as determined from time to time, may be stated in tabular form, as follows:—

6th May, 1892	1,950,000
13th „ „	2,450,000
20th „ „	2,675,000
27th „ „	2,550,000
11th June „	2,850,000
2nd July „	3,200,000

In this table is shown a considerable increase, interrupted once by a diminution. This fall in the number of the coloured corpuscles was apparently caused by the occurrence of the catamenial period, which had taken place a few days before the examination of the blood on the 27th May. The general result of treatment by means of an antiseptic substance in the case of an apparently simple anæmia is therefore similar to that observed in regard to pernicious anæmia.

It was not my intention to do more on the present occasion than to lay these facts before the Medico-Chirurgical Society, but it is difficult to abstain from drawing one or two provisional conclusions. The results to some extent support the explanation given by Bunge of the *modus operandi* of iron in the cure of anæmia. I am not sure whether his views have been previously mentioned in the Society or not, and it may be allowed me in a few words to state them. We have the authority of Schmiedeberg for believing that iron, except in organic combination, is not absorbed from the alimentary tract, and, stated succinctly, the explanation advanced by Bunge of the unquestionable effects of iron in almost every form of anæmia is, that such iron as is given medicinally seizes certain unknown poisons formed in the alimentary canal, and prevents them from acting upon the iron contained in the food and rendering it inert. It seems to me that this theory—which, however, I am informed by my friend Dr Stockman is in some respects not based upon unassailable grounds—receives some support from the results obtained by the use of a substance like

β naphthol. And the fact that the continuous use of saline purgatives may in itself, but still better along with iron, remove anæmia—a fact lately urged by Sir Andrew Clark—lends itself to the support of Bunge's view.

In the simple case described above iron would, no doubt, have more quickly cured the patient, but the point I desire to urge is that by antiseptics anæmia may be remedied. In a large number of cases treated by me in hospital work and in private practice, I have found extremely rapid improvement to follow the administration of iron along with β naphthol.

I would finally mention to the Society that in order to obviate the irritation sometimes caused by the β naphthol, I have found the best means of administration to consist in combining it with some bismuth preparation, such as the salicylate.

It is a pleasant duty to express my obligations to Mr Cotterill for his kindness in performing the operation of transfusion in the case of pernicious anæmia which has been narrated, to acknowledge the zealous devotion shown by Drs John Spurway, Stodart Walker, and Cuthbert Thompson in carrying out the details of observation in both cases, and to tender my thanks to Dr M'Lelland for his courtesy in keeping me informed as to the progress of the patient.

Additional Remark.

Since the foregoing observations were laid before the Society, Dr M'Lelland has reported a continued improvement in the condition of his patient. By 3rd August the number of coloured corpuscles had reached 2,830,000 per cubic millimetre, and the weight had risen to 12 st. 5 lb., and on 3rd September they were respectively 3,620,000 and 12 st. 3½ lb.

VI.—THE DIETETIC TREATMENT OF OBESITY.

By W. Towers-Smith, M.R.C.S. Eng.

(*Read before the Medico-Chirurgical Society of Edinburgh, 22nd March* 1892.)

It may perhaps be assumed that at all times in the world's history individual men have been troubled with the production of excessive fat, and it is consequently probable that even from the beginning more or less intelligent efforts have been made to deal with it. It would be interesting if it were possible to trace the disorder and its therapeutics to this primitive state, and I am tempted to suppose that the research would be fruitful, not merely of all decisive results, but in a high degree also by throwing a bright light on many interesting problems connected with nutrition and metabolism. In his savage state man can have had little tendency to grow fat. His constitution, unimpaired by vicious habits, must have sufficed for the supply only of his natural healthy wants, while the circumstances of his position precluded at once the possibility of self-indulgence, and enforced a life-long system of bodily asceticism. In the earlier civilisations of the East and of Eastern Europe we can describe a remnant of the primitive necessity in the self-imposed restraint of more opulent peoples. The athletic exercises of the Homeric heroes are the corollary of their simple if generous notions of the occasional feast. The abstemiousness of the Spartans was an institution jealously guarded amongst that brave people as the essential condition of their national supremacy. In the far East, where the human product of gentle conditions both of wealth and of climate were first threatened with the insidious corruption of luxury, wise and despotic rulers, no doubt seconded by the general feeling of the subject races, took infinite pains to secure the efficiency of manhood. We read in the *Cyropædia* of Xenophon of the almost incredible hardships which were willingly submitted to by the Persian youth. They courted fatigue as the source and origin of honour which was to be reaped only in the battlefield, and so far did they carry their notions of training, that the suggestion of any emunctory other than the skin conveyed with it the idea of reproach, and it was a disgrace for a young man even to blow his nose. Such excessive precautions, however admirable as an institution, implies a commencing departure from the earlier condition in which the wants of man's body were so nicely balanced with its usual demands. And perhaps I may be permitted the speculation, that in the spiritualized population of Athens, amongst which the arts and letters and all the higher refinements of which man's nature was capable flourished in a degree which has never since been attained, we are permitted to see the true apotheosis of the natural man. The state in which the transition to another, whether more or less perfect being, had not yet begun,—the state in which, while the simpler habits of the animal life were retained, the mind was untrammelled by compulsion of the body, and was free for loftier flights in its proper sphere. We are almost certain that obesity was hardly known in ancient Athens. The history of the later civilisations is a production of that of Persia. In the period of vital energy, which was also the period of ascendency, there was a constant struggle against luxury: in decline, degeneracy, and an abject submission to the demands of sense. In either state—whether in that of youth or of decay—we have evidence that, unlike their primitive ancestors, the men of the Western civilisations were subject to a craving of which the immediate effects must be reckoned unhealthy. But this craving, if it can be shown to be progressive, must surely be the expression of an equally progressive physiological change. Its outcome is a tendency, more or less pronounced in different races, to produce excessive fat, to acquire "flesh and all the ills that flesh is heir to." And if these ills must be regarded as intimately connected with a subtle but progressive change within the body, and if that change, as we cannot doubt, is one of the most obtrusive elements in the development both of the individual and of the race, it may fairly be claimed that the management or treatment of obesity is amongst the most imperative duties of the physician. I might dwell upon this position and enforce it from other points of view,—points of view from which the case appears even more urgent, but on that account I am the less tempted to enlarge upon them.

Consider one of those extreme cases with which every practitioner is only too familiar—a case in which age or the debility of chronic illness is thrown in the scale against the sufferer—when, with his organs diseased and impaired vitality, he has need of every effort of which his system is capable to meet some slight, perhaps unexpected, strain. It is then that we think with apprehension of the feeble and overloaded heart, the hampered respiration, the vast extent of useless and cumbersome tissue, which like a parasite draws from the labouring organs the nourishment that they sorely need. That is a sign that he who runs may read. The tendency to cause death is the touchstone of the medical judgment. Here it is apparent, and all the more so because little can be done to meet it. The time for that has gone by; it was a time when the patient was esteemed to be in good health only, because comparative youth and vigour enabled him to draw upon and to waste his surplus vitality, feeding the parasite while he fed himself,—suffering, it is true, but heedless of the future struggle when every ounce of fat would be a weapon against him. Then should have been foreseen the fatty heart, the loaded liver, the restricted lung surface, the kidneys prone to disease, and the inevitable day when the balance will kick the beam. The tendency to death is made obvious by experience. It is the duty of the physician to forecast events, and I submit that he is as little justified in neglecting to try conclusions with obesity while there is yet time, as he would be if he withheld the stimulant or depletory measures which he tries ineffectually to resist the fatal issue. Surely it is illogical and something worse to overlook at an early stage, where it may be checked, a state of things which becomes at once dangerous and intractable later on. But there is a difference in our notion of disease corresponding with the point of view from which we look at it. The scientific conception is one thing, the practical or working conception another. The latter is that which we first form for ourselves and then infect the public with, and public opinion again reacts upon us. For practical purposes disease includes just those morbid states which the doctor professes to cure or benefit,—where, in fact, he is allowed to try his skill, and where he thinks he can do some good. Now it is in this working category of diseases that I ask for a place for obesity; and to that end I hope, by publishing the results of treatment in my hands, to establish for it the requisite qualification of being amenable to therapeutic measures.

It is true I am not the first who has sought to show this. We live in a country where the conditions of existence incline men to grow fat, and perhaps it may be asserted that the proclivity is inherent in the Teutonic race. It happens, in consequence, that the problem has thrust itself forward automatically; and that, in addition to the small number of thoughtful physicians who have appreciated the need of combatting at the outset a tendency so directly fatal in the end, there have been amongst the vulgar very many sufferers whose present inconvenience has stimulated them to seek means of relief. Many systems have been vaunted and have been in vogue at different times, but none of them have held the field for long.

It will serve some purposes to inquire into the causes of this. The first and the most obvious is the difficulty with which the observer is necessarily met at the outset. Every attempt at a cure involves some degree of privation and no small share of perseverance and resolution. It is too much to say that obesity is always associated with self-indulgence, or even with indolence, but in a conspicuous proportion of cases this is undoubtedly so; and it follows that while self-restraint and temperance are in every case called for, the subjects are mostly those who are least able to bring these qualities to their support. A suitable dietetic treatment must therefore be as easy and agreeable as possible, calling for the minimum of sacrifice, and extending over the shortest possible time. These conditions, so far as I know, have not been realized. The system which bears the name of Banting was said to require a very long time to produce its effect, and it imposed intolerable hardship. Above all, its restraints were permanent. Banting's principle was, in the main, correct, but his knowledge of diet and its capabilities was defective, and his measures half-measures. Salisbury's plan, at present much in use, is open to the same objections, and it requires, further, a repulsive and ostentatious observance of details, a nauseating and monotonous diet, and a disregard of the claims of the palate which cannot fail to disgust. Here, again, the restraint is never relaxed—a point, in my opinion, of the first moment.

I will allude to the method employed in Germany by Schweninger, Prince Bismarck's attendant, because it may be classed with the others as involving unnecessary hardship; but I will go further and say that, if my views are correct, the abstention from fluid which is its main resource is positively harmful and dangerous:—

"With the exception of Towers-Smith, all make a great point of restricting the quantity of fluid drunk. This is probably a mistake, and all the reasons which have been urged in its favour reveal an erroneous knowledge of physiology. In reality there can, I think, be but little doubt that it is an advantage to take large quantities of fluid, for, as we wish to accelerate destructive metabolism, it seems but natural that we should, as quickly as possible, try to wash out all the products of destruction. By permitting, or better still, by enforcing the drinking of a great deal of fluid we prevent the thirst of which patients so often complain. The diet for the reduction of corpulence should not contain any alcohol, for it can do no good; and many forms of it, as sweet wines and beer, lead to a rapid accumulation of fat. If the patient insist on taking it, a little pure spirit and water is the best he can drink."[1]

I shall endeavour to show that the dietetic treatment which I employ is free from the gravest of these objections, is open but in a slight degree to any of them, and that the results obtained by it are very much better than any which have been claimed for the others.

A diet administered for whatever purpose should be effective of that purpose; it should also be agreeable to the palate. Of this I shall speak later. If it involves restriction, this should be as easy as the object in view will permit, and the period of privation should be the shortest possible. Interminable privation is an absolute bar. Another requisite for a satisfactory diet is that it should be—and should be known to be—wholesome and safe. There must be no fear lest in combatting a remote danger we induce another which is worse or more immediate. If such a danger exists it is a disqualification. If there is any doubt about it the case is nearly as bad, since medical authority will very properly decline to give its sanction to a mode of treatment which is questionable in this respect.

I propose to address myself to this subject first.

The object of treatment, of whatever kind, must be to prevent the formation of fat within the system, and by this and other means to promote the absorption of that which is already there. The obvious means of doing this is to withhold those kinds of food which are especially fat-making. As to what those foods are there are certain data furnished by physiology,—data, however, which must not be regarded as absolutely and necessarily reliable, but which need to be controlled by experience. The truth of this statement will appear later. In addition to withholding fat-forming foods it is necessary to administer others capable of serving the purposes of nutrition, and not in themselves dangerous. Upon this point also physiology has spoken, but I think prematurely and without due regard to unquestionable facts. Thus, for instance, it is commonly laid down in works on diet that the maintenance of the healthy functions requires four parts carbonaceous food (fat and carbohydrates) to one of nitrogenous (Parkes, Lyon Playfair, Pavy, J. K. Chambers). My experience is totally at variance with this. I have personally, or through other medical men, administered a diet of purely nitrogenous food to a thousand and ninety-two persons for a considerable period in each case. Amongst those cases were representatives of every class of life; and it has been my invariable experience, as it is to those who have worked with me, that concurrently with the rapid loss of weight there was improved nutrition, health, and vigour, with a general sense of well-being to which the subjects had in many instances long been strangers. If my testimony is not enough, I will depose to that of the distinguished physiologist mentioned above, the authority of Dr Broadbent, who, in his recent Lumleian lecture (*vide Lancet*, March 21st, 1891), says that in his experience a nitrogenous diet, largely diluted, is perfectly safe; and if further evidence is needed, it can be found in the fact that whole races have subsisted on animal food alone, and not only subsisted, but maintained a high standard of bodily vigour (*vide Lancet*, Dr Herschell, February 10th, 1890). The Terra del Fuegans recently exhibited at Westminster are good specimens of human beings fed on a diet entirely confined to lean horseflesh and water. The question arises, How are these facts to be reconciled with the experiments and observations of physiologists? Obviously the whole of the circumstances had not previously been taken into account. What may be injurious by itself may be rendered harmless by certain precautions. In my view the essential proviso for the safe administration of nitrogenous food alone is its dilution with copious potations. This point attended to, all danger vanished. The liver and kidneys are enabled to discharge their functions without embarrassment. An active but not excessive metabolism goes on; the body, in the case of a fat person, lives upon the carbon stored up within it; fat is quickly and continuously absorbed; and it is possible, as many of my statistics show, to bring down the weight as much as three stones in a very few weeks, and to take 12 to 16 inches off abdominal girth. At the same time the health and bodily and mental vigour in suitable cases exhibit marked improvement. I have satisfied myself of this by repeated and almost invariable experience, and my conviction is strengthened by the testimony of others. It happens that amongst my patients there have been many medical men, and the reports which they have furnished during treatment and for some time afterwards are obviously very valuable. One of these, a physician practising in the metropolis, writes under date April 23rd, 1891: "Since commencing your treatment five weeks ago I find that, tested by the spirometer, my breathing power (vital capacity) has increased by 15 to 20 per cent." Another gentleman, who has a large practice in a provincial town, consulted me by letter. In four months he reduced from 17 to 14 stones, and lost 9 inches in abdominal girth. During this period he discharged his duties with energy, and at the end of it writes to say that he seemed no longer disposed to put on fat, and adds: "I think I shall continue the diet for some time longer, as it seems to suit me so remarkably well." It is perhaps a truism to assert that the ordinary functions of the body are better performed by the lean than by the corpulent; but the converse proposition is less apparent, and it is not superfluous to insist upon the fact, which I have often proved, that conditions of ill-health which resist treatment of all other kinds may frequently be made to yield to a strenuous and vigorous diet. As an instance I would quote the following case, originally published by me in the *British Medical Journal* :—

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[1] *A Text-Book of General Therapeutics* (Dr Hale White, of Guy's Hospital), p. 115.

Obesity a Bar to Pregnancy.—Mrs A. consulted the late Dr Matthews Duncan for sterility early in 1890. Married five years; no family. She herself was one of nine children, having three sisters married, all with families. Menstruation irregular and scanty; very obese. Dr Duncan could find no physical reason for sterility except excessive fat. He advised Mrs A. to consult me, which she did on March 10th, 1890. She was placed on dietetic treatment, on the lines laid down and published in the medical journals from time to time since 1887.

The result of treatment was as follows:—*March* 10*th*, 1890.—Age, 27; weight, 14 stone 5 lbs.; abdominal girth, 52 in.; height, 5 ft. 3 in. *July* 15*th*, 1890.—Weight, 11 stone 10 lbs.; abdominal girth, 39½ in. In January 1891 Mrs A., after an interval of six months, came to see me, saying she had missed three periods, and had a suspicion she was pregnant. During her treatment menstruation had become regular and healthy. I could not positively, at that stage, say whether she was pregnant or not; however, in due course (Sept. 9th) she was delivered of a healthy boy.

Many well-known writers have pointed out that obesity is a bar to pregnancy. Dr Alexander Duke of Dublin has kindly sent me the *Satellite* (published in Philadelphia) for December 1891, which contains a short paper on "The Influence of Obesity on the Female Sexual Functions," by Dr Juan Rodriguez of Mexico. The remarks are instructive, and the ending more so:—"Sterility caused by obesity may be relieved by removing the cause."

Since what I may term the fundamental principle of my treatment is the strenuous, fearless, and persistent administration of nitrogenous food, I feel called upon to justify this departure at some length. Ample experience, as I have said, has taught me that such a diet is capable of supplying for a considerable time all the needs of the economy. Experience also—the best teacher—enforces the doctrine that the expedient is effective in reducing fat, and the cases I have quoted (which may be supplemented by hundreds more, of which I have notes) go to show that the method is innocuous to ordinary people. There is, however, one class of subjects in whom a special difficulty has been anticipated,—I mean those who suffer from gout. It might be feared that in this case the formation and deposition of uric acid would be much promoted by a nitrogenous diet. Again, I would assert that my experience is against this supposition. Uric acid is no doubt freely formed in some patients, but where this is so it appears to be as freely eliminated.

I am indebted to the courtesy of Sir Alfred Garrod for some researches bearing on this point. From an analysis of the urine of different animals habitually fed on various diets, he obtained the following results:—

	Daily out-put of Uric Acid.
Lion and tiger at the Zoological Gardens,	100,000 per cent.
Man on mixed diet, . . .	10,000 ,,
Linnet, fed on sugar, seed, and water, .	80 ,,

Sir Alfred Garrod was also kind enough to furnish me with an analysis, in respect to uric acid, of my own urine, under two different conditions of diet. In the first case I lived freely on a mixed diet of nitrogenous and farinaceous food, drinking also such wines as it is my ordinary habit to take. Under these circumstances the amount of urine passed daily was 70 ounces, and the out-put of uric acid 5·5 grs. per diem. I then dieted myself for three days on nitrogenous food alone, eating 3 lbs. of beef daily and 1 lb. of fish, taking only green vegetables, and drinking spirits and water. The quantity of urine passed in the twenty-four hours was 80 ounces, and the daily out-put of uric acid 10 grs. I believe, then, that in persons whose organs are tolerably sound, the treatment which I advocate may be pursued without injury, and even with benefit, for a much longer time than has been found in any instance necessary. And I would add, that a weak and encumbered heart is not a contraindication, but rather a further inducement to undertake its relief.

Since the treatment involves some degree of privation, I have devoted all my energies to reducing this to the utmost. It is here above all that I have found the widest scope, the most useful sphere, for innovation in dietetics. Dr Mitchell Bruce says, "The control which we possess over food is the foundation of the vast subject of dietetics." When we consider the extent and importance of the art of cookery alone, and when we further reflect that it has come into existence and developed to meet the requirements of the healthy organism, with the whole range of food stuffs at our service, we must surely admit that its principles are especially applicable to, and its assistance most needed by those on whom restriction is enforced. It is therefore more than ever desirable to consult the preferences of the palate. On this subject Sir William Roberts has written:—"The indications of the palate are of great importance in the regulation of the diet, and should also be inquired into and carefully considered. The palate is placed like a dietetic conscience at the entrance of the gate of food, and its appointed function is to pass summary judgment on the wholesomeness or unwholesomeness of the articles presented to it. It acts under the influence of a natural instinct, which is rarely at fault. This instinct represents an immense accumulation of experience, partly acquired and partly inherited. It is, of course, not infallible,—no instinct is; but so close and true are the sympathies of the palate with the stomach and the rest of the organism, that its dictates are entitled to the utmost deference as those of the rightful authority in the choice of food" (*British Medical Journal,* Oct. 18, 1890). Referring to the unauthorized distrust so commonly found amongst the vulgar, the same writer says:—"This Puritanical view of the palate is wholly unscientific. It, moreover, to speak figuratively, implies a gross slander on a responsible and rarely endowed organ, which has performed in the past, and still performs, most difficult and most complicated functions with complete success; for who shall venture to say that in the evolution of the human animal from the short-lived, immoral, and stupid savage, with his diet of wild fruit, roots, raw flesh, and unfiltered water, to the state of civilized man, the promptings of the palate have not played an important and even an indispensable part?" Applying these excellent maxims to an institution for obesity, it will be found that the palate is at once a trustworthy guide and an exacting master. Never can the Puritanical view alluded to be more fallacious, and till now it has been almost universal. It is this fact more than any other that has wrecked the previous attempts to find a cure for obesity; and further, most of those who have undertaken to treat this troublesome malady have always with diet associated some drug. For my part, I have reckoned with the difficulty from the outset. I have sought to become acquainted with every variety of available food stuff. I have learnt that this is surprisingly extensive, and by degrees I have provided myself with a frumentarium of very great variety. Compelled to recognise that the taste and requirements of hardly two people are alike, I have learnt by diligent inquiry to know from the ordinary preferences of the patient the best and most agreeable substitute, and in this way I am able to confirm most fully the dictum of Sir William Roberts.

But there are some cases, and they are not always easy to discriminate, in which the forethought, knowledge, and experience—without which, I contend, no one is justified in meddling with obesity—are absolutely needed to guide against disaster. It is an old saying, "What is one man's meat is another man's poison." The regimen which is suited and beneficial to one person may be absolutely injurious to another. I have not met with any untoward events in patients under my own supervision, because I am very careful to obviate mischance, but such have come to my knowledge. It was, unfortunately, a thing of frequent occurrence, more particularly in the earlier days, when I used sets of printed diet cards, which I then thought were suitable to all cases, were passed on by a patient for whom they were intended to others of whom I knew nothing; and so it happened that I unconsciously had treated several people at the same time. Necessarily I am kept unaware in most cases of the process and its result. I suspect that this is sometimes untoward, as it was in the case of a lady who helped herself for advice in this way, but who, unhappily for her, was subject to Bright's disease. I have always pointed out that it is essential that the liver and kidneys, upon which extra work is thrown, should be healthy and capable of bearing the strain. In addition to this, there are peculiarities which must be taken into account and carefully watched. Above all, it should be known by the confiding public that a diet card is not, as a law of the Medes and Persians, immutable, but, on the contrary, indefinitely variable, and that its misappropriation is apt to bring its own penalty.

My original diet charts were printed alike for all cases. I soon, however, found it necessary to vary treatment according to the needs of individuals.

Again, 20-stone cases obviously require more vigorous treatment than more moderate ones. I catechise the patient as to his daily habits, diet, family history as to obesity, and state of general health, and prescribe accordingly.

Again, it is important to curtail, as far as possible, the period of considerable privation. From the knowledge that there is nothing to fear from the energetic administration of nitrogenous food, it happily results this may be done safely in the most rational manner. The first fortnight suffices for the complete degree of privation; even that in certain cases may be greatly modified by permission to use a considerable selection of vegetables, and the necessity of taking fluid abundantly enables me to propitiate the palate, and to combat nausea by the exhibition of stimulants, aërated waters, and light wines to almost any desired extent. The course of treatment is divided into three periods. Of the first sufficient has been said. In the second and third restrictions are gradually removed. After the lapse of nine weeks the patient may return to his usual mode of life. Let that be in the words of Prince Hal to Falstaff,—"Drinking of old sack, unbuttoning him after supper, and sleeping upon the benches after noon." Even then he will have a long start of his foe, and he may devote many months and even years to storing up fat before he will have regained the two or three stones lost so easily and in so short a term. Indeed, I have most commonly found, as in the case of the medical man already quoted, that hardly any tendency to obesity remains; but I advise a return to a restricted diet at intervals of two or three months for a period of ten days, which I have found amply sufficient to prevent any serious increase of bulk or weight, but it is necessary to prohibit permanently the use of sugar and beer. I am well aware that a method of treatment such as this will be judged by results. That is the criterion which I have myself applied to it. I have published the results of forty-two cases in the *British Medical Journal* of 10th November 1888, and of thirty-two cases in the issue of 31st May 1890. I would refer to these, and add also to them statistics of cases that have come under treatment up to date.

Case 1.

Sex.	Age.	Height.	Weight.	Abdominal girth.	Date.
M.	60	5 ft. 4½ in.	13 st. 4½ lbs.	46 inches.	20/4/91
...	...	...	11 st. 6¼ lbs.	37 inches.	15/7/91

This gentleman, a member of the profession, having tried every means of reduction, consulted me, and obtained the above result. His heart and lungs were both affected, and it was not uncommon for him to have attacks of syncope. Since his treatment he walks four and five miles a day, and enjoys perfect health.

Case 2.

Sex.	Age.	Height.	Weight.	Abdominal girth.	Date.
F.	39	5 ft. 3 in.	15 st. 9 lbs.	58 inches.	25/9/91
...	...	...	13 st. 3 lbs.	47 inches.	26/1/92

Greatly improved in general health.

Case 3.

Sex.	Age	Height.	Weight.	Abdominal girth.	Date.
M.	35	6 ft.	17 st. 8½ lbs.	50 inches.	16/10/91
...	...	...	13 st. 13½ lbs.	41 inches.	10/3/92

Mr Daniell of Blandford says this gentleman has never been so well or fit in his life.

Case 4.

Sex.	Age.	Height.	Weight.	Abdominal girth.	Date.
F.	27	5 ft. 1 in.	12 st. 9¾ lbs.	48½ inches.	10/12/91
...	...	...	10 st. 6 lbs.	40 inches.	25/1/92

Dr Griffiths of Harley Street, finding this patient extremely obese and suffering from attacks of syncope three or four times a week, suggested treatment for fat. Under this the attacks of syncope have entirely vanished.

As showing the amount of loss that may be sustained by exercise, a friend, a medical practitioner, cycled one hundred miles in ten hours. Commencing on an empty stomach, and taking during the journey *a small* quantity of bread and cheese with milk and soda-water. The weather was extremely hot, and perspiration very excessive. Weight on starting, 11 st. 7 lbs.; on completion of the journey in ten hours, weight 10 st. 9 lbs., a loss of 12 lbs. He goes on to say that he was not very tired, but was extremely shaky and nervous, and so much altered in physiognomy that his immediate family scarcely recognised him.

I have sufficiently indicated the circumstances to which I attribute my success. I have made sufficiently prominent the necessity of limiting, as far as possible, the privation imposed and the necessity of studying and consulting the patient's taste. But this will be useless without a sufficient knowledge of the means by which, and the limits within which it may be safely gratified. This knowledge can be obtained only by patient and careful inquiries; and he who would treat obesity with success must be prepared with resources which are practically unlimited.

Reverting to the general consideration with which I prefaced my remarks, I would insist that as medical practitioners whose lot is cast amongst a people overburdened with wealth, inheriting predispositions which are often wholly at variance with individual habits, the latter day reproduction, in many of their conditions, of whose bodily weaknesses have brought about the downfall of great nations and have spread some of the saddest phases of history, we hold in our hand a weapon powerful for much good; we have imposed upon us by our knowledge a new duty, and we must not be tempted to pass it by.

DIET FOR AN EXTREME CASE.

1*st Period*, 14 *Days.*

Breakfast.—Tea or coffee, with saccharin if desired in lieu of sugar; bread or biscuits made from soya bean, 2 oz.; grilled white fish or red meat, kidneys.

Lunch.—Cut from joint of beef or mutton, taking no fat, and one helping of green vegetables, avoiding only peas, beans, and all roots; soya bread or biscuit, 1 oz.

Dinner.—Clear soup, white fish, red meat, green vegetables as at lunch; soya bread or biscuit, 1 oz.

Drink.

First thing on waking.—Tumbler of hot water with slice of lemon.

11 A.M.—Cup of bovril or clear soup.

Lunch.—Two glasses of claret or 1 oz. of whisky with potash water.

5 P.M.—Cup of bovril or clear soup.

Dinner.—Two glasses of still hock or claret, or whisky and potash.

Bedtime.—Cup of bovril or clear soup.

Mustard, pepper, salt, Harvey's sauce, may be taken.

2*nd Period*, 21 *Days.*

Additions to No. 1.—Oysters, tongue, stewed fruit, with saccharin; poultry, game.

3*rd Period*, 31 *Days.*

Additions to No. 2.—Toast in place of soya bread, for each meal, 2 oz., savoury jellies, aspic of prawns, plovers' eggs, jelly.

Dessert.—A small quantity of fruit; blue-mould Dorset cheese.

Suppose a case, 20 stones, requiring reduction 4 stones. The above diet will, provided a large amount of liquid be taken in the 66 days, be sufficient. A return to usual diet may be resumed. The rise will be gradual, and 10 days' resumption of either No. 1 or 2 periods, three or four times per annum, will be amply sufficient to regulate weight and bulk in future.

A moderate amount of exercise proves useful. In dealing with milder cases, commence with No. 2, or even 3, when an equally satisfactory result may be obtained.

Hours of meals must be regulated by usual habits of each patient, and it may be also useful to say that nearly all cases require variation of rules as to diet, though the principle remains the same.

No. 1.—Specimen Diet Chart.

This diet sheet is arranged in accordance with usual habits and family history as to obesity, and must be strictly confined to personal use.

Name and address..189-

Diet Chart for 14 *Days.*

7 A.M.—Sip slowly a tumbler of hot water with lemon juice.
9 A.M.—*Breakfast.*—Two cups of tea or coffee without sugar or milk, taking saccharin if needed; 1 oz. of soya bread or biscuit; grilled white fish, steak, chop, kidneys.
11 A.M.—Tumbler of hot bovril or clear soup.
1.30 P.M.—*Lunch.*—Cut from joint of beef or mutton, with one helping of either cabbage, spinach, tomatoes, asparagus, French beans, plain lettuce, and watercress; 1 oz. of soya bread or biscuit.
5 P.M.—*Afternoon Tea.*—Cup of tea *a là Russe*, or cup of bovril.
7.30 „ —*Dinner.*—Clear soup, white fish, red meat, vegetables as at lunch; 1 oz. of soya bread or biscuit.
Bedtime.—Tumbler of hot bovril or clear soup.

1. All food should be plainly cooked (grilled for preference), no fat, skin, or rich *gravy* should be taken.
2. Drink claret, still hock, burgundy, Scotch whisky, and potash water.
3. Exercise—a moderate amount of walking should be done daily.
4. Condiments—Mushroom ketchup, Worcester and anchovy sauce, mustard, pepper, and salt may be taken.

Part Second.

REVIEWS.

A Dictionary of Psychological Medicine, giving the Definition, Etymology, and Synonyms of the Terms used in Medical Psychology, with the Symptoms, Treatment, and Pathology of Insanity, and the Law of Lunacy in Great Britain and Ireland. Edited by D. HACK TUKE, M.D., LL.D. &c. London: J. & A. Churchill: 1892.

ON the 21st July of this year, about fifty members of the British Medico-Psychological Association gathered at York to celebrate the hundredth anniversary of the Friends' Retreat. This was the first asylum in Great Britain in which was inaugurated a more humane treatment of the insane. A similar reform was about the same time commenced by Chiarugi in Italy, and by Pinel in France. The first superintendent of the new Asylum was William Tuke, great-grandfather of Dr Daniel Hack Tuke. Seated under the portrait of his ancestor, to whom he bears a remarkable likeness, Dr Tuke held in his hand the first copy of the *Dictionary of Psychological Medicine.* After some preliminary business the learned editor rose, and amidst the applause of his friends and colleagues, he presented the work to the President, Dr Robert Baker, medical superintendent of the Retreat. This triumph, impressive in its very simplicity, was gained by the work of a lifetime. After having enriched the literature of insanity by a number of able books, most of which have been reviewed in this Journal, Dr Hack Tuke has been at work for the last three years in editing this dictionary. A considerable part of it has been written by himself; the remainder is the work of 127 contributors selected for their special knowledge of the subjects which they treat. The list comprises men learned in the lore of insanity and neurology in almost every country of the civilized world. The dictionary, therefore, may be held to be the latest outcome of ripe science and learned research, and the merits of such a work may be safely taken for granted. The book is made up of two volumes, large octavo, holding 1477 pages. It is illustrated with a number of woodcuts and lithographs. The work is introduced by a learned historical sketch of the insane, written by the editor, and a chapter on the Philosophy of Mind, which occupies 23 pages. The rest of the book is printed in double column. The subjects are treated in alphabetical order, and, lest the reader should be ever at a loss to find what he seeks for, there is a copious index at the end. It requires time to be sure of the completeness of a dictionary—one must go again and again to consult it in his difficulties. If he constantly find them solved, his confidence rises; if he fail to gain within its leaves the knowledge he seeks, his trust in the dictionary is diminished. We can only say that this new lexicon has answered the tests which have occurred to us. Indeed, there seems to be a superfluity of thought and care bestowed on the work. It contains explanations of many words now never used, some of which probably were never much in use; but this is a remark which one could make about most large dictionaries. The meaning of some of the words explained seems to us too simple for such a special work. Nobody is likely to take down the *Dictionary of Psychological Medicine* to find out what is meant by "abomination," "mental capacity," "agony," "agreement," or "torpor." For a good many words given we should be inclined to look in a Greek lexicon or a German dictionary, but then it may be said that this work will be consulted by inquirers who do not know Greek or German.

It may be assumed that no two men editing such a book would agree as to what should be put in and what should be left out. The second word given in the dictionary is Abdera, whose inhabitants, we are told, had the character of being more stupid than other people. We now naturally turn over to look for Bœotia, but in vain; nor can we find Fife, which furnishes to Scotland an adjective denoting insanity. What heightens this national grievance is that the Scottish word "wud" is given, while such synonyms as gyte and daft are omitted. In his anxiety to give employment to the whole alphabet the editor has printed eleven words beginning with z, Greek and German, not one of them English. In such straits could he not have given a short definition of the word zany, a class of weak-minded persons who might have been appropriately described in such a dictionary.

But to come to more serious matters, it may give one an idea of the careful division of labour to note that five learned physicians are employed in the important subject of the brain. Thudicum treats of the chemistry; Beevor of the physiology; Alexander Bruce of the anatomy; Crochley Clapham of the weight of the organ; while Benedikt writes of the brains of criminals. The legal aspects of insanity receive much attention. Many of the articles on this subject are written by Mr A. Wood Renton, an English barrister who has gained the reputation of being able to grasp the several views of insanity taken by the Faculties of Medicine as well as those of Law.

In mentioning the names of contributors we make no effort to distinguish their different merits. Each appears the master of his subject, and perhaps the most telling advertisement of the book would be a simple list of their names. In some cases it may be said that no other man, save the actual contributor, possesses sufficient knowledge or opportunity to have written so complete and exhaustive a description of the subject treated. As an instance of this we may take the papers on "Ergotism" and "Pellagra" by Dr Franz Tuczek. Many of the articles are written by London men, but Scotland is well represented by Drs Colin Campbell, Clouston, John Fraser, Alexander Robertson, George Robertson, Batty Tuke, and Yellowlees. Dr Urquhart contributes a learned bibliography, which contains a list of every important work and some unimportant ones bearing on lunacy, from Reginald Scot's *Discovery of Witchcraft* (1584) down to Dr Walmsley's *Outlines of Insanity.* We cannot say that anything of consequence is left out of this useful repository, though our estimate of the scale of importance does not always chime in with that of the editor's. We should have wished that a description of insanity resulting from peripheral neuritis, as has been sketched by Korsakoff, should have been more fully given, and the connexion of that disease with beri-beri been explained as far as it is known. Moreover, we think that the editor in his article on "Classification" does not treat Paranoia with sufficient respect. This term is now used to designate a characteristic form of insanity, and has been so accepted, not only by German, but also by many Italian and American physicians. In Great Britain medical men are slow to recognise definitions which they have never been taught in forming their knowledge; but we are of opinion that the methods of classification used by Krafft-Ebing and other German writers will, in process of time, modify or supplant the provisional nosologies used in our country. However, this is a matter which will not be arranged without much ink being spent.

In conclusion, we hope that the sale of this work will be sufficiently large amply to recompense the enterprising publishers, and sufficiently rapid to allow of future editions kept up to the fullest knowledge of the day.

The Structure and Functions of the Brain and Spinal Cord; being the Fullerian Lecture of 1891. By VICTOR HORSLEY, B.S., F.R.C.S., F.R.S. London: Charles Griffin & Co.: 1892.

IT is a little difficult to understand for whom this book is intended. It is too elementary for the ordinary medical reader, and presupposes a too extensive knowledge of anatomy and physiology to be of use to the layman desirous of obtaining some knowledge of the structure and action of the nervous system. In fact, like so many works of its class, it is neither sufficiently popular nor sufficiently scientific. This is to be regretted, for the medical practitioner stands much in need of a clear and succinct statement of the present state of our knowledge of the nervous system; and no one is better fitted to give this than Prof. Horsley. However, if the reader prepares himself to skip much with which he must be already familiar, he will glean a rich harvest from the perusal of these lectures.

Prof. Horsley approaches his subject in the only philosophic way. After considering in the first lecture the history of the various great advances in our knowledge, he, in the second and third lectures, traces the development of the nervous system from the simplest animals up to man. In this portion of the work, everywhere so replete with interest, it is difficult to indicate parts of special excellence. Perhaps the most masterly is that which deals with the question of rhythmic action as exemplified in the physiology of the medusa.

The fourth lecture, on the spinal cord, is perhaps the least interesting of the series. In spite of the caution so admirably set forth in lecture two, we here find the author giving explanations of the functions of parts without due experimental basis. To call the medullary covering of a nerve fibre "a sheath of insulating material," may or may not be true in part or in whole.

It is the last four lectures of the series which will prove of special interest to the physician, for in these is most clearly stated the results of the more modern work upon the physiology of nerve fibres, ganglia, and the spinal cord.

Sufficient has been said to indicate the scope of these lectures, and to show that they are well worth the study of all who wish to apply the lessons of recent physiological research to the investigation of disease.

Outlines of Insanity. By FRANCIS H. WALMSLEY, M.D., Leavesden Asylum. London: The Scientific Press: 1892.

THIS is, the author tells us, an attempt to present in a concise form, and in simple language, the salient features of mental disorder. It is designed for the use of medical practitioners, justices of the peace, and asylum managers. Beginning with normal and abnormal mentation, the author describes the commonly recognised forms of insanity, and finishes with a chapter on its causation. His descriptions are accurate and picturesque, his style vivid, and his examples are well chosen, some of them very striking. Dr Walmsley shows an intimate knowledge of his subject, based both upon experience and wide reading. We should judge the book to be a very readable one to any educated person who has a desire to know something about insanity. The work is not designed to be a text-book for medical men, and there is no chapter on treatment. We cannot venture to say whether there be a demand for a book of this kind, for it is difficult to know what the reading public really want; but we can certainly recommend it as deserving the attention of those for whom it is written, and of many others besides.

Practical Pathology. A Manual for Students and Practitioners. By G. SIMS WOODHEAD, M.D., F.R.C.P. Ed. Third Edition. Edinburgh and London: Young J. Pentland.

WE have reviewed at length the previous editions of this work, and it is therefore unnecessary to consider the third edition in detail. Suffice it to say that it is fully worthy of the author's reputation, displaying as it does the wide knowledge and the painstaking care in regard to the smallest detail which characterize all his work.

The chief novel feature is the introduction of an admirable chapter on Inflammation and the Healing of Wounds. But on every page improvements and additions are to be observed.

The modern student of pathology is to be envied the possession of such a guide, and the only danger seems to be that he may trust too much to his guide and too little to his own powers of observation.

Transactions of the Pathological Society of London. Vol. XLII. London: Smith, Elder, & Co.: 1891.

As usual, the Pathological Society have issued a volume full of interesting reports on various and, in many cases, rare diseases. Even to mention by name those papers which would repay careful study would be to fill several pages of this Journal. Cases of Heterotopia of the Gray Matter of the Spinal Cord, Syringomyelus, Chylous Ascites, Acromegaly, Goître in an Accessory Thyroid, and of Hæmatoporphyrin in the Urine, are a few of the rarer diseases which are the subjects of reports. A word must be added with regard to the illustrations, which are absolutely perfect, although, in the Report of the Society, included at the commencement of this volume, the Publishing Committee deplore their costliness, and we do not wonder.

How to feel the Pulse and what to feel in it; Practical Hints for Beginners.

Cardiac Outlines for Clinical Clerks and Practitioners, and First Principles in the Physical Examination of the Heart for the Beginners. By WILLIAM EWART, M.D. Cantab., L.R.C.P., Physician to St George's Hospital, Clinical Lecturer and Teacher of Practical Medicine in the Medical School, etc. London, Paris, and Madrid: Baillière, Tindall, and Cox: 1892.

THE first of these works is intended to teach beginners all about the pulse, and contains many useful hints on a subject which at present is not taught with nearly sufficient care. It is a pity that the author could not see his way to print a few sphygmographic tracings of the rarer pulses, for, although the sphygmograph is not always a reliable instrument, nothing explains better the actual form of, for instance, the pulsus paradoxus, or bigeminus, than a tracing.

The second volume is filled with diagrams illustrating the relation between the surface and deep anatomy of the thorax. The later diagrams look to us uncommonly like some from the first book of

Euclid, and it seems a pity to give elaborate directions to beginners for finding the apex "spot" by a series of geometrical puzzles. A broad chest and a narrow one influence the position of this spot very materially, and it is not likely that it may always be found by some hard and fast rule. Included in this volume are a code of intolerably tedious symbols for the normal and abnormal cardiac sounds.

International Clinics. Vols. III. and IV. Edinburgh and London: Young J. Pentland: 1892.

The last two volumes of this fine series worthily maintain the promise of the former numbers. Clinical lectures often epitomise in a clear way the current opinions of different diseases, and there is not one of the lectures included in these volumes, however elementary they may be in part, which does not repay careful perusal. In volume iii., Professor Gairdner, writing on Acute Intestinal Obstruction, utters a warning note with regard to too hasty operative interference; Da Costa describes Malarial Paralysis, and Weir Mitchell Permanent Headaches. Dr Dercum's description of Adult Chorea, with some good illustrations, is very instructive. Volume iv. commences with a memoir of Theodore Parkes, M.D., of Chicago, who died last winter. The first clinical lecture is on the Various Forms of Purpura, by Thomas Oliver, M.D., of Newcastle, with illustrative cases. Among the others is the inevitable description of the Brand treatment of Typhoid Fever, this time by W. Gilman Thompson, M.D., New York, who thinks the method worth a further trial; while Dr Sidney Coupland narrates the good effects of cold baths on the hyperpyrexia of acute rheumatism. In a lecture on Migraine Dr Hammond states that it is absolutely essential to differentiate between the angio-spastic and the angio-paralytic forms of the disease. In his hands regular exercise and removal of contributing causes, as eye-strain, hæmorrhoids, or uterine growths, may cure without the exhibition of drugs. Indeed, he regards the beneficial effects of atropine, hyoscine, cannabis indica, and other drugs of this class, as only temporary and partial. Other excellent papers there are, too numerous to mention here.

Surgical Treatment of Neuralgia of the Fifth Nerve (Tic-douloreux). By William Rose, M.B., B.S. London, F.R.C.S., Joint Professor of Surgery in King's College, London, etc. London: Baillière, Tindall, & Cox: 1892.

The admirable Lettsomian Lectures delivered by Mr Rose on this subject are still fresh in the memories of those who read reports of them in the weekly journals, and of those who were fortunate enough to hear them delivered and emphasized by the strong personality of the lecturer. The profession will be glad to have them now collected in one handsome volume—well edited and illustrated.

The disease which Mr Rose has taken for his text is one of the most intolerably distressing maladies which torture poor humanity, and is one of those neuroses which, probably as civilisation advances, become more common and more torturing. Varied in its causation,—whether local from dental caries, bony deposits along nerve canals or at nerve foramina, from cold, from toxic, reflex, or functional disorders, up to the true epileptiform neuralgias, in which convulsions of pain resemble in their explosive force the motor symptoms of epilepsy,—all the severe cases have the one common character of intractability. No treatment seems to have more than a temporary good effect. In the first lecture is a very full account of recent pathological researches into the condition of the arterioles of the nerve-sheaths, and of other researches into microscopic evidences of sclerosing changes in the nerves themselves. The surgical treatment of the terminal branches is then described, including neurotomy, neurectomy, and nerve-stretching.

In the second lecture deeper operations on nerve trunks and ganglia are described and discussed, including the formidable but scientific operation for the removal of Meckel's ganglion, which is associated with the names of Carnochan of New York and Chavasse of Birmingham.

The third lecture is devoted to the description of the operation for removal of the Gasserian ganglion by the base of the skull route. A most formidable operation, it demands not only most accurate knowledge of anatomical detail, but also very considerable operative dexterity and coolness. Prof. Rose has proved that he is possessed of the necessary qualifications, and his success in the six cases he reports has been very encouraging. He does not approve of the alternative intra-cranial method of operating recommended by Prof. Horsley. The book is one which every operating surgeon will read with both pleasure and profit.

The Retrospect of Medicine; a Half-Yearly Journal, containing a Retrospective View of every Discovery and Practical Improvement in the Medical Sciences. Edited by JAMES BRAITHWAITE, M.D. London: Simpkin, Marshall, Hamilton, Kent, & Co., Limited.

BRAITHWAITE'S Retrospect, the least imposing among the annuals, is by no means the least interesting. Quality, not quantity, is evidently the motto of its editor, and in it the busy practitioner will find the most useful of the papers published in this country during the year. The last volume, if not as interesting as many of its predecessors, is only so because the papers extracted are more general in their scope, and because no great advance has been made in any branch during the last six months.

Ptomaines and other Animal Alkaloids. By A. C. FARQUHARSON, M.D. Bristol: John Wright & Co.: 1892.

AT the present time, when so much valuable and important work is being accomplished on the nature of the various chemical products of vital action—bacterial and other—and their relationship to the pathogenesis of disease, it is a matter of the utmost importance that every practitioner should have some general knowledge of these substances.

Dr Farquharson's little work makes no pretence at originality, but in a clear and terse manner gives an account of the important set of bodies now generally known as *ptomaines.*

It is needless to review the work in detail. Suffice it to say that it will prove most useful to the medical man who has not enjoyed a special training in this difficult branch of toxicology.

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland; comprising Lists of the Papers read during 1890-1 *before Societies engaged in Fourteen Departments of Research, with the Names of their Authors.* Compiled from Official Sources. Ninth Annual Issue. London: Charles Griffin & Company, Limited: 1892.

AS before, this is an exceedingly well-arranged publication, and one from which an immense amount of useful information may be drawn, not only in reference to the societies themselves and their office-bearers, but also in estimating and referring to the scientific work of the past year. To some it must be indispensable, to all most convenient.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. IV. for the year 1891. Philadelphia: 1892.

THE fourth volume of the *Transactions of the American Association of Obstetricians and Gynecologists,*—a society which has as its object "the cultivation and promotion of knowledge in whatever relates to Abdominal Surgery, Obstetrics, and Gynecology,"—contains the presidential address and some twenty-five papers on subjects in the above-mentioned fields of study. The communications are for the most part directly practical, and are all of considerable merit, although there is perhaps none of outstanding interest. Dr Montgomery's record of two cases in which sacral resection was applied to gynecology is of some importance; in one of these a cancerous uterus, and in the other a cancerous rectum and uterus, were thus removed. The patients recovered perfectly in both cases, but it was, of course, impossible to say what the ultimate result as regarded the cancer might be, as only a few months had elapsed. The author quotes Hochenegg's record of thirty-nine cases with thirty-one recoveries and eight fatal cases, and advises the operation in those instances where the uterus is large and cannot easily be removed per vaginam, but it must be confessed that this method of operative procedure is still on trial. Other papers of interest are those of Krug on "Trendelenburg's Posture," of Cushing on the "Use of the Uterine Sound," and of Elliot on "Viability at Six and a Half Months."

Transactions of the American Orthopedic Association. Vol. IV. Philadelphia: 1891.

The Publication Committee of the Association are to be congratulated on this their fourth volume of Transactions. It is very much larger than its immediate predecessor, and contains a number of valuable communications of great interest to the general surgeon. Potts' disease of the spine and its various complications, form the subject of no less than twenty-one papers, of which two are contributed by English writers. Other communications deal with club-foot, congenital dislocation of the hip, gonorrhœal rheumatism, scoliosis, torticollis, and allied deformities. The volume is well furnished in every respect, and is illustrated by a number of woodcuts and excellent photographs.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXI.—MEETING XI. (SPECIAL).

Wednesday, 23rd *June* 1892.—Mr Joseph Bell, *President, in the Chair.*

Original Communication.

Dr Brakenridge read a paper on THE TREATMENT OF PERNICIOUS ANÆMIA BY THE TRANSFUSION OF HUMAN BLOOD, which will appear in a future number of this Journal.

Dr Affleck said that having been invited to take part in the discussion, he thought he could perhaps best do so by giving the Society a brief account of a case of pernicious anæmia recently under his care in the Royal Infirmary, in which transfusion was followed by the most marked success, and by exhibiting the patient. W. L., æt. 44, a carter, was admitted to Ward 29 on 4th January last with all the symptoms and signs of anæmia in an aggravated form. He had been under treatment in the Royal Infirmary in May last for similar symptoms, and at that time there was a suspicion of Addison's disease, but after a long stay in the hospital he left somewhat improved, and had continued fairly well until some weeks prior to his admission on the present occasion. No cause could be discovered for the profound anæmia which now existed. On examination of his blood the red corpuscles were found to be reduced to 1,240,000 per cmm., and they were of extremely irregular shape, showing also numerous megalocytes and microcytes. The hæmoglobin, which was 20 per cent., was fairly well represented in each corpuscle. There was no absolute increase in the number of leucocytes. The patient complained of pain in the chest, cough, shortness of breath, and great exhaustion. The skin was extremely pallid, and had the characteristic lemon tint. Cardiac, pulmonary, subclavian, and jugular murmurs were well heard. There were no retinal hæmorrhages. The patient was put upon treatment by arsenic, and his diet was adjusted to his feeble digestive capacity. Day by day all through his stay in the hospital the blood corpuscles were carefully counted, and the calculation was duly checked. During the whole of January the condition remained without much change, although the tendency was downward, the corpuscles falling frequently to 1,000,000 and even lower. As February advanced a change for the worse became very apparent. The corpuscles continued to diminish, being sometimes as low as 970,000, and the hæmoglobin 17 per cent. It would be difficult to convey any adequate idea of the state of utter and seemingly hopeless exhaustion to which this patient was reduced by the middle of February, and it seemed unlikely that he could survive for another fortnight. He (Dr Affleck) had seen many fatal cases of pernicious anæmia, and this case had every character of one of that class. At this time transfusion was proposed to the patient, with considerable hesitation on his (Dr Affleck's) part, as a last resort, and the patient, who felt himself going down rapidly, gave his consent. Mr John Duncan was communicated with, and he agreed to perform the operation, which was accordingly done on 17th February. Mr Duncan would doubtless refer to some of the details of the process in this particular case, but he (Dr Affleck) as a witness of the proceeding could not avoid paying a tribute to the great care and patience with which the operation was performed in circumstances of special difficulty. The blood was generously furnished by one of the clinical clerks, Mr A. Scot Skirving, and it was treated in the usual way with a solution of sodium phosphate. The patient was extremely weak, and he was very timid, and bore the operation rather badly, frequently complaining of pain in the back, and asking to get done with it. After about four ounces had been injected, the operation, which occupied over an hour, from the slowness with which it was necessary to proceed, had to be stopped, the patient becoming restless. His pulse, however, had kept good and even improved during the operation, and there were no alarming symptoms present. About two hours after the transfusion the patient had a rigor, and the temperature rose to 103°. This feverish symptom passed off in the course of the night, and the following day he was feeling pretty well. No increase, however, was discernible in the corpuscles, which, on the contrary, fell to 790,000, the lowest point yet observed. Four days after the operation (21st Feb.) a change for the better was quite manifest in the patient. He felt stronger and better, and had a good appetite, while the blood corpuscles rose to 1,010,000. This proved to be the beginning of a steadily progressive increase.[1] When the patient left for the convalescent house on 14th April his red blood corpuscles numbered 4,900,000, and on his coming in to the Infirmary to report himself on 21st April, they had risen to 5,110,000, and he had a ruddy, brown appearance of strong health. The patient returned home perfectly well, and has continued so till the present time. He (Dr Affleck) sent for him yesterday, June 22nd, and found, notwithstanding the fact that the poor man has not succeeded in falling in with work, and therefore has not been so well fed as he might have been, the red corpuscles still number about 5,000,000 and are of perfectly normal appearance, and the members of the Society would have an opportunity of judging by the patient's appearance of the completeness of the recovery in this case. (Here Dr Affleck exhibited the patient.) No doubt in a case of this kind a relapse might occur, but there is no appearance of any such thing, and it is, to say the least, a highly satisfactory result to have an improvement so striking as this. Specially noteworthy are the smallness of the amount of blood used, and the rapidity, steadiness, and completeness of the progress back to the normal character of the blood. Whatever its *modus operandi*, this small transfusion must have had the effect of arresting blood destruction and restoring healthy hæmopoiesis. To regard the improvement in this case as a mere coincidence would be to shut one's eyes to the facts of its clinical history. A result like this, and like those narrated in the interesting communication of Dr Brakenridge, would seem to show that there are cases—it may be classes of cases—of this disease where transfusion is the one sovereign remedy, and at all events they go a long way to justify the continuance of this proceeding as a rational means of treatment. The case now narrated has impressed upon him (Dr Affleck) a lesson in this direction. He confessed to having had a poor

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[1] The following figures will show the rate of progress :—

Feb. 24.	1,410,000
„ 26.	1,920,000
„ 28.	2,150,000
March 1.	2,440,000
„ 4.	3,160,000
„ 10.	3,370,000
March 13.	3,880,000
„ 20.	4,180,000
„ 29.	4,190,000
April 14.	4,910,000
„ 21.	5,110,000

A daily observation was made. Some days showed a slight falling off, but the above figures illustrate the progressive character of the improvement following the transfusion.

opinion of the operation from all he had observed and read of it, but he has entirely changed his view, and while, of course, in any case he should in the first instance resort to the usual measures of treatment by arsenic, etc. (under which he has seen several cases greatly benefited), and give these every opportunity, he should still feel that he had a further resource which might stand between the patient's malady and death, and should urge the employment of it with some measure of hope.

Mr John Duncan said he would not venture to discuss the pathology of pernicious anæmia, or whether the remarkable results which had been detailed by Dr Brakenridge and Dr Affleck were due to one or other constituent of the blood, or in consequence of an action on pathological or physiological functions of the body. He (Mr Duncan) concerned himself solely with the surgical aspects of the treatment which was adopted. It is within the experience of all surgeons to be called upon to consider the propriety of introducing fluid into the circulation in cases of impending death from hæmorrhage. In most cases, the hæmorrhage being arrested either artificially or by the syncope of the patient, recovery even after extreme losses was comparatively easy and speedy; so that there were really few of which it could not be said that if the hæmorrhage were arrested the patient would recover; if it were not arrested, treatment would not avail. Still those few remain, and there were still others in which the danger of shock from the injury, accidental or operative, was seriously aggravated by loss of blood. In such cases he had from time to time practised the various operations that have been advocated, such as the injection of saline solution, of milk, of defibrinated blood, and of human blood in its entirety. He had been greatly dissatisfied with all. He had found the direct injection of blood difficult and dangerous, and had been impressed by the fact that while a saline solution frequently produced a remarkable rally, the patient invariably died within four-and-twenty hours. In view of a recent paper, which gave the satisfactory effect of injecting larger quantities than he had done of normal saline solution, this opinion may after trial require to be modified. Such, however, had been his unfortunate experience when, some years ago, his attention was directed by Mr Cotterill to the suggestion made by Dr Pavy to maintain the blood fluid by means of phosphate of soda. He lost no time in putting this in practice, and the results obtained were so encouraging that he extended the application of the method to the reintroduction of the blood lost into a vein on the surface of the wound in cases of surgical operation where the hæmostatic methods employed might be tardy and difficult. It was not necessary to recapitulate instances, which have been numerous, of life directly saved by this method. He would only refer to the case in which Dr Edward Carmichael saved a patient by injection of blood from his own arm, and to the large quantity of twenty-two ounces of blood and soda solution which he

(Mr Duncan) reinjected with the best results in a patient of his colleague Mr Miller. In a former paper in the *Edinburgh Medical Journal* he had explained the method and the necessary precautions. They were so simple that they did not need to be repeated, and he would only direct attention to certain points in connexion with this farther extension of transfusion of blood to cases of anæmia at the suggestion of Dr Brakenridge, Dr Affleck, and others. He desired, however, first to insist on what he emphasized in his former paper,—the necessity for the utmost attention to asepsis. He then recorded a case of septicæmia, in which there was reason to fear that contamination of the fluid by septic pus had been allowed during the collection of the blood as it flowed in a case of amputation high in the thigh. He took blame to himself that a certain measure of septic infection occurred in the two cases done at the same time, to which Dr Brakenridge had referred. They were in the habit of keeping in the wards, in a large flask stopped with cotton wool, a carefully asepticised solution of phosphate of soda in distilled water. Unfortunately this had been recently used up, and, when he ordered the apparatus to be prepared, a fresh solution was simply ordered from the laboratory without the necessary directions for repeated boiling which he had given in his paper. In a matter of this kind he ought to have personally attended to every detail, but he was under the impression that the person to whom it was entrusted had been cognisant of the method followed in former operations. These precautions were necessary in all transfusions. But there was one peculiarity in cases of anæmia for which experience in infusion for hæmorrhage did not prepare one. He meant the necessity for extreme slowness in operating. No doubt it was always advisable not to be too rapid, but in pernicious anæmia the sensitiveness of the heart and vessels to increased tension is doubtless increased, while there cannot, of course, be the diminution of pressure, the room, which obtains after hæmorrhage. It was the fact, at least, that, with variations in individuals, irregularity of pulse, breathlessness, and pain in the small of the back, were easily produced by injecting with rapidity, and those operations were most satisfactory which were done most slowly. It was an evident corollary from this that the amount of the solution should be sufficient to keep the blood fluid for a considerable time. He regarded 30 minutes as the minimum time that should be occupied in injecting 8 ounces of fluid, and while the coagulating tendency of the blood varied considerably, he should say that one part of solution to three parts of blood was rather small to insure perfect fluidity, that the best proportion was one-third, and that a much larger quantity of the solution might be used without diminishing the benefit. It was common after injection, but not by any means invariable, to have a rigor within a few hours. He had convinced himself that this was not connected with any septic state. Its exact meaning had still to be made out, but it might be associated with the unavoidable mechanical damage which must be done to some of the corpuscles in the progress of the operation. This was also indicated by the hæmoglobinuria which was sometimes present, and Dr Gillespie had pointed out to him (Dr Duncan) the extreme tendency to rigor in paroxysmal cases of that condition. It had been maintained that the injection of blood was useless, and that the blood-cells thrown in were no more viable when human than when animal blood had been used. The rigors and hæmaturia had been adduced in support of this opinion. But the cases related by Dr Brakenridge seemed conclusively to negative this hypothesis. Moreover, the hæmoglobinuria never corresponded to the quantity of blood injected, and both it and rigor were often entirely absent. Whatever constituent of the blood might be useful in these cases of anæmia, it was permissible to believe—(1), that most of them when injected were still viable; (2), that, as with skin, bone, and nerve, healthy blood tissue might have a determining influence in producing its like; (3), that the introduction of blood in cases of hæmorrhage was more valuable bulk for bulk than that of saline solution; and (4), that these cases proved that with little risk a beneficial effect in anæmia was produced by the operation.

The President, after remarking on the extreme interest and importance of the communications just made, ventured to hope that the discussion which would now follow would be also instructive.

Dr James said he wished, in the first place, to express his sense of the great interest and value of Dr Brakenridge's paper and of Dr Affleck's addition to it. Without in any way diverting attention from the important points connected with the practical application of the treatment by transfusion in this disease, he (Dr James) thought they were now in a better position than they had ever been before to consider why transfusion of blood should be so frequently found to be of the immense value which it showed itself to be in the case they had heard of to-night. How, for example, could the transfusion of such a small quantity of blood—in Dr Affleck's case only 4 oz.—arrest completely the tremendous loss of corpuscles which had been occurring? Now he (Dr James) thought they could not suppose that the corpuscles could have had, as corpuscles, much to do with it. What he thought they might suppose was, that in pernicious anæmia there was something in the system, if he might use the term, *micro-organismal* in character, whether it was derived from the alimentary canal, whether it produced the anæmia by giving origin to unhealthy young red corpuscles, or by killing off too soon healthy old ones, or by both, it did not for their present purpose signify. Given this morbid substance, it produced, month after month and week after week, more and more anæmia. Now, they could explain the value of a single small transfusion, if they supposed that healthy blood could exercise a phagocytic action on this morbid substance. For this they had the analogy of Koch's tuberculosis, of the use of thyroid juice injections in myxœdema, and still more aptly of the treatment of tetanus by the injection of the serum of an animal which had been rendered immune to that disease. What he (Dr James) would wish to hear discussed, therefore, by the Society was the probability of the good effects of transfusions being explained in this way. Further, if this was the explanation, they could understand that a rise of temperature after the operation might be of the same nature as the reactions after a tuberculin injection. In Dr Affleck's case this rise was well marked, and the patient seemed none the worse, perhaps even all the better, of its occurrence. Lastly, if there was anything in this explanation, the injection of healthy blood serum should be as efficient as the transfusion of healthy blood.

Dr William Russell hoped the Society would permit him to refer to a paper he had read on Pernicious Anæmia to the British Medical Association in 1888, and which was published in the *British Medical Journal* in 1889. When he began to study the disease, the question which presented itself to him was whether it was the result of diminished formation or of increased destruction of red blood corpuscles, and at that time there was little guidance to be found in the literature of the subject on that point. When examining the condition of the organs he had found that there was evidence of great blood destruction in the liver, spleen, and kidneys; and similar observations had been made by others. On finding this marked evidence of blood destruction, he was attracted by the view that pernicious anæmia might be a liver disease, but he soon abandoned that view for various reasons. While there was this undoubted evidence of greatly increased destruction on the one hand, there was to be placed along with it the further fully accepted fact of a great increase in the red marrow of the bones, and his contention in the paper referred to was that this was to be regarded as a hyperplasia of a tissue which was accepted as an important blood-forming tissue. There were thus two facts established,—increased blood destruction, which he did not believe was due to what he then called a blood-hunger on the part of the liver; and an increase of blood-forming tissue, which he regarded as a compensatory hyperplasia. Further than that it seemed to him then that neither physiology nor pathology permitted them to go. The question now was whether any additional light had been thrown on this subject by Dr Brakenridge's work, and by work in other fields, and he thought there had been. Dr Brakenridge's therapeutic experiments, coupled with Dr Affleck's case, clearly and indisputably established the fact that after transfusion the blood continued to increase in corpuscles and hæmoglobin long after the corpuscles added by the transfusions must have perished. This fact was of the greatest interest and importance, in view of the work which had been done in this limited period of time by Metchnikoff and many others, working on parallel lines, all tending to place serum therapeutics in the position of a new science. There was abundant evidence now of the influence of blood serum under certain conditions to counteract the effect of bacterial poisons, no matter whether we regarded that action as an antitoxic one or as influencing the phagocytic action of certain cells. From these facts and from Dr Brakenridge's work, it appeared to him that a further provisional step might be taken in the explanation of the disease, for there was no reason why pathology should not avail itself of therapeutic facts, and the view which had been before his mind for some time, knowing as he did the results Dr Brakenridge was obtaining, and in view of other facts with which he was acquainted but could not refer to, was in the direction Dr James had suggested, namely, that the disease was an infective one, using that word in its widest sense. This view fitted in with the results of the therapeutic experiments by transfusion, and if this surmise were correct, Dr James's further suggestion that the blood serum might be enough was also probably correct. The view that the transfused blood acted beneficially on the blood-forming tissues did not appeal to him as it did to Dr Brakenridge; whereas the view that the transfused blood counteracted a poison was in harmony with recent work. The question still remained, whether this poison was a ptomaine absorbed from the alimentary canal, as Hunter held, or a poison generated by an organism within the blood itself. The former view did not commend itself to him, nor did he think that the results of transfusion supported it, more especially those cases where a single transfusion had proved sufficient.

Dr Smart, referring to clinical work which he had done in relation to the treatment and pathology of anæmia, said that he had been particularly interested in one feature to which his attention had been specially drawn, and which, he thought, was of immediate interest in relation to the present discussion. He had obtained a striking hæmatine reaction in the urines of all the severer cases of bad anæmias by means of a reagent first suggested to him by MacMunn[1] in his book on the *Clinical Chemistry of the Urine*. There is no ocular evidence of blood in these urines, many of them being pale and colourless. The characteristic red colour only appears with the reagent. The view explanatory of this evidence of blood in the urine is that ptomaines, during the course of anæmia, are developed in the bowel from secondary fæcal decompositions, and, being absorbed into the blood, are destructive of the red corpuscles to the extent of causing anæmia. The results of examinations of a number of his cases of anæmia, including those of chlorosis and pernicious anæmia, tended to corroborate this view. He further took opportunities of examining the urines of patients in whom there had been lengthened retention of fæces on account of chronic constipation. And in one case of intestinal obstruction with fæcal retention for nearly a month, the urine exhibited the hæmatine reaction most strikingly—the patient, he may add, being at the time profoundly anæmic. If the view be correct, and these results would imply that it was well founded, that in anæmia, especially of the pernicious type, the red corpuscles in the circulation undergo destructive changes in consequence of auto-blood-intoxication in the way described above, it may be held as most probable that the blood-making organs, as well as the entire range of tissue, activity suffer from the effects of this sepsis. This is evident, especially in pernicious anæmia, by the great numerical depreciation of the red corpuscles, their altered shapes, and the low standard of hæmoglobin—all indicating the disability of the blood-making organs to supply the number and quality of the corpuscles required for the needs of a healthy vitality. If we take into account this twofold disability, we may better appreciate the results which followed the transfusion of healthy blood as mentioned by Dr Brakenridge, and as seen in Dr Affleck's patient, into whom only four ounces were injected. The remarkable effects produced in these cases cannot, on any view, be explained by reference to the quantity of blood used. It would be more consonant with our knowledge and experience to ascribe these effects to the energetic action of the healthy blood acting under the special circumstance as a most potent therapeutical agent, effectually stimulating the organs and functions, depraved and devitalized to the last degree for want of it, and rousing them into renewed and sustained activity by affording the tissues, and still more the great trophic and other centres immediately concerned in blood-making and nutrition, that kind and degree of stimulation most efficacious. In illustration of the extraordinary effects of powerful reagents, he instanced those following injection of minute quantities of tuberculin upon tubercular conditions. Dr Brakenridge's work on transfusion was of great value in settling the question of its eligibility as a means of treatment. After the results obtained we must now regard it as a remedy of great value, and one which it will be our duty to give our patients the benefit of.

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[1] MacMunn, in the statement referred to above, is, I find, adducing proof in support of Sir Andrew Clark's theory, that in chlorosis and allied conditions fæcal matters are absorbed from the intestine into the blood, which have a rapidly destructive effect upon the red corpuscles.

Dr Robert Muir considered that such cases as those brought forward by Dr Brakenridge and Dr Affleck were of great importance in relation to the pathology of the disease, as the results appeared too striking to be explained as coincidences merely. Yet cases of pernicious anæmia sometimes pursued a very remarkable course when not treated by transfusion. He mentioned a case in which during observation the number of corpuscles somewhat rapidly fell to 500,000 per cmm., and in which, owing to arsenic being badly borne by the patient, the only treatment was small doses of iron, which could scarcely have had any part in bringing about the result. The number of corpuscles, after falling to the figure mentioned, suddenly began to increase, and steadily rose till it reached nearly 4,000,000 per cmm., when the patient left the hospital. Such a case seemed more easily explained on the theory that a process of blood destruction was going on, and that the poison causing it had in some way been suddenly got rid of, the normal or hyperplastic bone marrow then being free to produce a rapid increase in the number of red corpuscles. If the pigment containing iron found in the liver in such cases was due to a rapid natural death of weak corpuscles, one would expect to find it in severe cases of secondary or symptomatic anæmia, which, so far as his experience went, was not the case. Moreover, the corpuscles in pernicious anæmia were on the whole larger and better coloured than in cases of secondary anæmia, *e.g.*, due to cancer. He considered that the theory of blood destruction explained most of the clinical and pathological facts, though some were still left unexplained. If in some cases the blood transfused produced a marked improvement, he thought that the theory suggested by Dr James was the more probable one. In Dr Affleck's case the quantity of blood transfused on one occasion only was so small that it was scarcely conceivable that the *red corpuscles* could bring about such a change in the blood-forming apparatus as to produce the effects observed. If, on the other hand, some chemical poison, possibly a bacterial product, caused the breaking down of red corpuscles, the blood-serum of a healthy individual might possess, in some cases, an antagonistic action. Somewhat analogous facts were known with regard to certain diseases, *e.g.*, tetanus and diphtheria. If the serum did possess such a property, it might possibly be found to be more powerful in some individuals than in others.

Dr James Ritchie said that all present must view with great satisfaction some of the results reported by Dr Brakenridge, and also that most interesting case exhibited and described by Dr Affleck. These practical results were most encouraging. As to the pathology, he believed, with Dr Russell and Dr James, that the disease is due to an increased destruction of blood, and not to an error in the blood-forming organs. He would not attempt to cover the ground which had been so ably occupied by Dr Russell, but he wished to give three further sets of facts which led him to take the view of the pathology which he did. *First*, clinically there was a class of cases of anæmia in which one could find no fault with the kind and quantity of food, the indigestion was not of such long duration as to account for the anæmia which existed, and there was no history of loss of blood or of wasting discharge. In addition to pallor the complexion was sallow, grayish, the urine was high coloured, and contained a very evident quantity of albumen, and in the conical glass with nitric acid showed the upper band of haze described by Dr Steven as characteristic of liver disorder. Treatment directed to the stomach produced no marked benefit, but treatment directed to the liver was followed by disappearance of the symptoms and of the anæmia. The *second* class of cases had been already alluded to by Dr Smart, viz., those in which decomposition of the intestinal contents was accompanied by anæmia. Restoration of the intestinal contents to a normal condition was followed by improvement in the quality of the blood. The *third* series of cases was of special interest to Dr Ritchie, and was somewhat exceptional. It was a matter of common experience that after birth, in consequence of the altered circulation through the liver, the newly-born child was more or less jaundiced, and in some cases there was a degree of anæmia. In the speaker's experience of eight children born to a healthy father and mother, although they were all plump, healthy-looking children, of good colour when born, the whole of them became jaundiced to an unusual degree; the anæmia was very alarming, and although four of them had recovered and lived, the other four had succumbed to the anæmia. Two of those who lived were hardly expected to survive, the anæmia and consequent debility were so profound. There was no hæmorrhage on the surface, except in one case in which severe umbilical hæmorrhage occurred, but in addition to the pallor there was a marked lemon tint. The urine was high coloured. The liver and kidneys of one case were examined; they became black at once when treated with sulphide of ammonium, and under the microscope abundance of iron pigment granules were seen both in liver cells and in kidneys. In the first class of cases the anæmia seemed to be due to an excessive destruction of blood in the liver, which was readily arrested by treatment of the liver. In the second class the anæmia was probably induced by the action of ptomaines or some poison from the intestinal tract, acting through the liver. In the third series there was an exaggeration of a condition which occurred naturally, which was often followed by a slight degree of anæmia, and which was almost invariably recovered from; but in all of these children it was much more profound than usual, and in four of them it was so severe as to cause death. In these cases the symptoms had a marked resemblance to pernicious anæmia; there was evidently an increased destruction of blood. In those who survived there seemed to be no error in the blood-forming organs, and the post-mortem appearances showed that there had been an excessive destruction of blood, and they resembled those found in pernicious anæmia.

Dr Norman Walker had three remarks to make. 1. It was surely a point of great interest that the microcytes which were invariably present before the transfusion were never subsequently observed. It seemed a point in favour of Dr James's claim, that transfusion supplied a direct antidote to the poison which was causing the disease. 2. Would it not be well to stain preparations of the blood, before and after the transfusion, to show the effect of that process on those cells which could only be differentiated from each other by their colour proclivities? 3. In reference to the unfortunate injection of septic material in one of the cases—where time could be taken, of course the fractional method of thorough sterilization in plugged flasks was the ideal method, but when needed for immediate use he wished to press the fact that ordinary tap water was a safer solvent to use than old distilled water, even if it had only stood for one day.

Dr Matheson Cullen wished to make a few remarks on the subject under discussion, and that merely from a biological point of view. What is the explanation of the improvement brought about by the transfusion of blood? Is that amelioration due to the fact that the new blood cells replace the diseased ones and carry on their work? The answer to this question is of great biological importance. If the new cells can live in the body and perform their functions just as if they were in their parent body, then we have advanced far in the direction of the indefinite prolongation of life. For if we can introduce bodies capable of doing the extremely necessary duties of blood cells, we have reason to suspect that other cells in the body will be replaced in a similar manner, and in any case the possession of an ever vigorous blood and always energetic blood cells cannot but greatly postpone the final dissolution. Analogy, however, would suggest that the cells of transfused blood do not live in their new surroundings. We see this in the case of bone and epithelial cells. These have no very important function to perform, and we might surmise that they would live if planted in another body. This, however, does not obtain, for it is found that such cells for the most part die, and are removed by the cells of the body into which they were engrafted. At most they seem but to form a scaffolding by means of which new tissue is built up, and they seem to have some power in directing the new growth to the formation of a tissue similar to themselves, the bone cells suggesting bone, and the epithelial ones epithelium. Thus one might infer that blood cells are not likely to live in other blood, and this we know to be true in cases where the blood of an animal of one species is transfused into an animal of a different species. With regard to the transfusion of blood from man to man, the question has not been so clearly elucidated. Dr Brakenridge thinks they do live, at least for some time, and he points out that the increase in the number of cells immediately after transfusion generally represented accurately the number of new cells added. On the other hand, as I have stated, analogy would point to an opposite conclusion, and some facts appear to support this. Firstly, the transfusion may not be followed by any immediate increase in the blood cells; in Dr Affleck's case there was even some diminution. Secondly, hæmatinuria not seldom follows transfusion, pointing undoubtedly to destruction of red cells within the body. From all this it would seem that the improvement after transfusion in these cases is due to the curative influence of normal blood serum, or of the substances produced by the normal breaking down of the blood cells. Either or both influences may be at work, but in any case the method is brought into relation with recent interesting experiments. Brown-Sequard and D'Arsonval have shown that the serum and debris obtained by crushing the testicle and the gray matter of the brain have a powerful influence on the bodily economy, and the juices expressed from the thymus and the thyroid gland appear to possess similar properties. To the beneficial action of this new therapeutical group it would appear that we must ascribe the benefit from blood transfusion. But whether the benefit be from vital action or from mere chemical action, it is needless to point out the extreme biological interest attaching to the whole question.

Mr Cotterill said he should like to add his word of thanks to Dr Brakenridge for his able paper; and he felt all the more bound to do so, as the remarks which had fallen from him and some of the other speakers confirmed the view which Mr Cotterill had formed of the value and safety of this method of operation,—a view which he had impressed so strongly on Mr Duncan as to induce him to give it a trial. From his own experience subsequent to the first operation done in 1883 (during which time he had had a large number of very successful cases), he could speak in terms of the highest commendation of the method of transfusion with phosphate of soda solution; and while he quite agreed that the saline solution alone might overcome a temporary difficulty, his experience of it in many cases was that it was decidedly inferior to the transfusion of human blood—the effects of the former being frequently transient and eventually unsatisfactory. As Mr Cotterill felt responsible for the introduction of this method to the Edinburgh school, he could not, in justice to the operation, allow it to be said that it required any great skill on the part of the operator; and while insisting that he in no sense wished to depreciate the character of Mr Duncan's operations, he was confident that one of the greatest advantages of the method was the ease with which the operation might be carried out. Whichever of the two theories of the method of working of the transfused blood eventually turned out to be the correct one, meanwhile the blood in its entirety might be freely and safely injected by this method, if the following points were attended to,—firstly, asepsis; secondly, patience in doing the operation very slowly; and, thirdly, care in keeping the blood which is being injected at a proper temperature.

Mr John Duncan said he quite agreed with Mr Cotterill that the operation required little skill or dexterity. There was more skill required by a carpenter in making a chair than by a surgeon in any operation. But knowledge and care were essential in all, and he could not too strongly insist that while this was an operation easily done, it was one in which a little carelessness might produce disastrous results.

INFORMATION REGARDING MEDICAL EDUCATION AND EXAMINATIONS IN EDINBURGH.

The Royal College of Physicians of Edinburgh, The Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow, have made arrangements by which, after one series of Examinations, held in Edinburgh or in Glasgow, or in Edinburgh and Glasgow, the Student may obtain the Diplomas of the Three Co-operating Bodies.

The object of the Joint Examination is to give to Students facilities for obtaining, after one series of Examinations, the Qualifications in Medicine and Surgery of the three Scottish Corporations. Students passing the Final Examination, which is a qualifying Examination under the Medical Act, 1886, and entitles the holder to practise Medicine, Surgery, and Midwifery, will be enabled to register three Diplomas under the Medical Acts, viz.—Licentiate of the Royal College of Physicians of Edinburgh, Licentiate of the Royal College of Surgeons of Edinburgh, and Licentiate of the Faculty of Physicians and Surgeons of Glasgow.

Female Candidates are admitted to the Examinations for this Qualification equally with male candidates; and throughout these Regulations the masculine pronoun is to be read as standing for Candidates irrespective of sex.

The three Co-operating Bodies grant their *Single* Qualifications only to Candidates who already possess another and opposite Qualification in Medicine or Surgery, as the case may be. Thus the Royal College of Physicians of Edinburgh may grant its Licence on Examination to Candidates already possessed of a recognised British, Irish, Indian, or Colonial Qualification in Surgery, and the Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow, may each grant its Licence on Examination to Candidates already Licentiates in Medicine of any British, Irish, or Colonial College whose Preliminary Examination and course of Professional Study is proved to be sufficient, or Graduates in Medicine of any British, Irish, Indian, or Colonial University. Copies of the Regulations for the Single Qualification of any of the Bodies may be had on application to the respective Secretaries.

N.B.—Under the provisions of the Medical Act of 1886, these *Single* Qualifications do not confer the right to registration, but may be registered as additional Qualifications by those already on the Register.

General Regulations.

Candidates who commence medical study before 1st January 1892 shall be subjected to three Professional Examinations. herein called the First Examination, the Second Examination, and the Final Examination, to be conducted at separate times, partly in writing, and partly practically and orally. The Regulations applicable to Candidates who commence study after that date may be had on application to Mr James Robertson, Solicitor, 1 George Square, Edinburgh, or to Mr Alexander Duncan, B.A., Faculty Hall, 242 St Vincent Street, Glasgow.

Opportunities of entering for each of these Examinations will be presented six times in each year—four times in Edinburgh and twice in Glasgow. A Candidate at any of these Examinations may present himself either in Edinburgh or Glasgow, irrespective of the place at which he may have previously been examined.

Candidates who are unsuccessful, either at the First, the Second, or the Final Examination, or any part of these Examinations, shall be remitted to their studies for a period to be determined by the judgment of the Examiners, but not in any case less than three months.

Candidates may enter for all the subjects of an Examination at one time, or may enter for and pass in any division of subjects thereof.

A Candidate may obtain an absolute pass in any subject of an Examination on his obtaining not less than 55 per cent. of the marks in the conjoined Written and Oral, or the Written, Clinical, and Oral parts (as the case may be), although he may at the same time fail in other subjects. In such a case a Record shall be made of the subject or subjects passed, and the Candidate shall be exempt from re-examination in them. The same rule shall apply to Candidates entering for one or more divisions of an Examination.

Applicants for admission to any of the Examinations are required, on entering, to lodge with the Inspector of Certificates a schedule (forms for which are supplied) showing the Courses they have attended qualifying for admission, and if not entering for the whole Examination, must state which subject or division of subjects they are to be examined on.

No Candidate can be held to be entered for any Examination till he has sent in the proper schedule, proved his course of study, and paid the appropriate fee.

At the Oral Examinations Candidates shall be examined as far as possible in the order of their entry.

The subjects of the Second Professional Examination should, as far as possible, be studied only after the First Examination has been passed; and similarly, the subjects of the Final Examination should, as far as possible, be studied only after the Second Examination has been passed. By adhering to this course the student will have his attention occupied by preparing for only one Examination at a time.

Candidates, qualified by having attended the necessary courses of study, may however enter for two or more Examinations, to be passed successively at the same period, the condition being that failure to pass in all the subjects of any Examination precludes the Candidate from admission to the succeeding Examination. The necessary Schedule and Certificates must be lodged, and the fees for these respective Examinations paid, at the period of entering for the earliest of them. In the event of failure, the fee paid for any subsequent Examination to which a Candidate had been thereby precluded from admission to the Examination will be returned to the Candidate.

No Candidate shall be admissible to Examination who has been rejected on the subjects of the Examination by any other Licensing Board within the three preceding months.

The following are the Names and Addresses of the Inspectors of Certificates :—In Edinburgh :—Mr James Robertson, Solicitor, 1 George Square. In Glasgow :—Mr Alexander Duncan, B.A., Faculty Hall, 242 St Vincent Street.

The following are the General Medical Council's Requirements for the Preliminary Examination of Medical Students :—

All Medical Students must register in the Medical Students' Register of the General Medical Council before they can be admitted to any Professional Examination. Whenever they have passed the Preliminary Examination in the required subjects, and commenced Medical Study at a recognised Medical School, or at a recognised University or Teaching Institution where subjects of the Medical Course are taught, they should register not later than fifteen days from the commencement of study, and should not neglect this requirement.

Students who commence Medical Study before January 1st, 1892, shall have previously passed (at one or more Examinations) in the subjects of General Education, as follows :—1. English Language, including Grammar and Composition ; 2. Latin, including Grammar, Translation from specified Authors, and Translation of easy passages not taken from such Authors ; 3. Elements of Mathematics, comprising (*a*) Arithmetic, including Vulgar and Decimal Fractions ; (*b*) Algebra, including Simple Equations ; (*c*) Geometry, including the first book of Euclid, with easy questions on the subject-matter of the same ; 4. Elementary Mechanics of Solids and Fluids, comprising the Elements of Statics, Dynamics, and Hydrostatics ; 5. One of the following optional subjects :—(*a*) Greek ; (*b*) French ; (*c*) German ; (*d*) Italian ; (*e*) any other Modern Language; (*f*) Logic; (*g*) Botany; (*h*) Zoology; (*i*) Elementary Chemistry.[1]

Students who commence Medical Study after January 1st, 1892, shall have previously passed in the subjects of General Education, as follows:—1. English Language, including Grammar and Composition; 2. Latin, including Grammar, Translation from specified Authors, and Translation of easy passages not taken from such Authors; 3. Mathematics, comprising (*a*) Arithmetic; (*b*) Algebra, as far as Simple Equations, inclusive; (*c*) Geometry, the subject-matter of Euclid, Books I., II., and III., with easy deductions; 4. One of the following optional subjects:—(*a*) Greek; (*b*) French; (*c*) German; (*d*) Italian; (*e*) any other Modern Language; (*f*) Logic.

The entire Examination must be passed *at one time*, except in the case of Examinations passed for graduation in Arts of any of the Universities recognised, or in the case of students who have, prior to January 1st, 1892, passed in part of a recognised Preliminary Examination.

No fee is payable for Students' Registration, and Registration when once effected does not require to be repeated in any succeeding year.

Forms of application for Registration may be obtained from James Robertson, Registrar of the Branch Council for Scotland, 1 George Square, Edinburgh.

The following List of Examining bodies are recognised for registration as Medical Students, provided that in all cases the subject of Mechanics, as above set forth, be shown to have been included in the Examination:—

(1.) UNIVERSITIES OF THE UNITED KINGDOM.

Oxford.—Examination for a Degree in Arts; Responsions; Moderations; Local Examinations (Senior), Certificate to include Latin and Mathematics; Local Examinations (Junior), Certificate to include Latin and Mathematics; and also one of the following optional subjects:—Greek, French, German.

Cambridge.—Examination for a Degree in Arts; Previous Examination; Local Examinations (Senior), Certificate to include Latin and Mathematics; Local Examinations (Junior), Certificate to include Latin and Mathematics, and also one of the following optional subjects:—Greek, French, German. Higher Local Examinations.

Durham.—Examination for a Degree in Arts; Examination for Students at the end of their first year; Examination for Certificate of Proficiency.

Oxford and Cambridge Schools' Examination Board.—Certificate to include the following subjects, an adequate knowledge of English Grammar and Orthography, as shown in the course of the Examination, to the satisfaction of the Examiners, being held as conforming to the requirements of the Medical Council in regard to those subjects:—(*a*) Arithmetic, including Vulgar and Decimal Fractions; (*b*) Algebra, including Simple Equations; (*c*) Geometry, including the first two books of Euclid; (*d*) Latin, including Translation and Grammar; (*e*) and one of the following optional subjects:—Greek, French, German.

London.—Examination for a Degree in Arts or Science; Preliminary Scientific (M.B.) Examination; Matriculation Examination.

Victoria University.—Preliminary Examination, Latin to be one of the subjects; Entrance Examination in Arts, to include all the subjects required.

Edinburgh.—Examination for a Degree in Arts; Preliminary Examination for Graduation in Science or Medicine and Surgery. Local Examinations (Senior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects:—Greek, French, German. Local Examinations (Junior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects:—Greek, French, German.

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[1] Students who have passed in all the above subjects, with the exception of Mechanics, may commence study, and when they do pass in Mechanics they may be registered, and their registration antedated.

Aberdeen.—Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine and Surgery; Local Examination (Senior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects:—Greek, French, German. Local Examinations (Junior Certificate); Certificate to inclnde all the subjects required.

Glasgow.—Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine and Surgery; Local Examinations (Senior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects:—Greek, French, German. Local Examinations (Junior Certificate); Certificate to include all the subjects required.

St Andrews.—Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine and Surgery; Local Examinations (Senior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects:—Greek, French, German. Local Examinations (Junior Certificate), to include all the subjects required.

Dublin.—Examination for a Degree in Arts; Public Entrance Examination; General Examination at end of Senior Freshman year.

Queen's University (Ireland)[1].—Examination for a Degree in Arts; Entrance or Matriculation Examination; Previous Examination for B.A. Degree; Local Examinations for Men and Women; Certificate to include all the subjects required by the General Medical Council.

Royal University of Ireland.—Matriculation Examination; Examination for a Degree in Arts.

(2.) OTHER BODIES NAMED IN SCHEDULE (A) TO THE MEDICAL ACT (1858).

† *The Society of Apothecaries of London.*—Examination in Arts.

† *Royal Colleges of Physicians and Surgeons, Edinburgh.*—Preliminary (combined) Examination in General Education.

† *Faculty of Physicians and Surgeons of Glasgow.*—Preliminary Examination in General Education.

† *Royal College of Surgeons in Ireland.*—Preliminary Examination, Certificate to include Mathematics.

(3.) EXAMINING BODIES IN THE UNITED KINGDOM NOT INCLUDED IN SCHEDULE (A) TO THE MEDICAL ACT (1858).

College of Preceptors. — Examination for a First Class Certificate, or Second Class Certificate of First or Second Division, Algebra, Geometry, Latin, and a Modern Language having been taken.

Intermediate Education Board of Ireland; Junior, Middle, and Senior Grades. —Certificate in each case to include all the subjects required by the General Medical Council.

† *Queen's College, Belfast; Queen's College, Cork; Queen's College, Galway.*—Matriculation Examination.

† *St David's College, Lampeter.*—Responsions Examination to include all the subjects required.

Educational Institute of Scotland.—Preliminary Medical Examination.

† *Pharmaceutical Society of Great Britain.*—Preliminary and Minor Examinations *pro tanto.*

† *Pharmaceutical Society of Ireland.*—Preliminary Examination *pro tanto.*

Scotch Education Department.—Leaving Certificates in each Grade and in Honours.

(4.) INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

Universities of Calcutta, Madras, and Bombay.—Entrance Examination Certificate to include Latin.

M'Gill College, and Bishop's College, Montreal; Toronto.—Matriculation Examination.

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[1] This University was merged into the Royal University of Ireland in 1881, but Certificates previously obtained are still accepted for registration.

Trinity College, Toronto; Queen's College, Kingston; Victoria College, Upper Canada.—Matriculation Examination.

Western University of Ontario.—Entrance Examination in Medicine, Certificate to include all the subjects required for registration.

College of Physicians and Surgeons of Ontario.—Preliminary Examination, Certificate to include all the subjects required for registration.

University of Manitoba.—Previous Examination.

King's College, Nova Scotia.—Matriculation Examination; Responsions.

University of Halifax, Nova Scotia.—Matriculation Examination.

University of Fredericton, New Brunswick.—Matriculation Examination.

Mount Allison College, New Brunswick.—Examination for a Degree in Arts.

Dalhousie College and University, Halifax, Nova Scotia.—Matriculation and Sessional Examinations.

Provincial Medical Board of Nova Scotia.—Matriculation Examination.

† *University of California.*—Examination in Department of Letters.

University of Melbourne.—Matriculation Examination.

University of Sydney.—Matriculation Examination.

University of the Cape of Good Hope.—Matriculation Examination; Examination for a Degree in Arts.

University of Adelaide.—Matriculation Examination or its substitute, the Senior Public Examination, Junior Public Examination, Certificate to include all the subjects required for registration.

Codrington College, Barbados.—English Certificate for Students of two years' standing, and Latin Certificate, or "Testamur."

Tasmanian Council of Education.—Examination for the Degree of Associate of Arts, Certificate to include Latin and Mathematics.

Christ's College, Canterbury, New Zealand.—Voluntary Examinations, Certificate to include all the subjects required by the General Medical Council.

University of New Zealand.—Entrance Examination.

University of Otago, New Zealand.—Preliminary Examination.

Ceylon Medical College.—Preliminary Examination (Primary Class).

Germany and other Continental Countries.—Gymnasial, Abiturienten-Examen, and other Corresponding Entrance Examinations to the Universities.

† *Gymnasia of the Circuit of Dorpat.*—Examinations of Maturity.

Note.—The General Medical Council will not accept Certificates from the above Boards marked †, except in the case of students who prior to 1st January 1892 shall have passed any part of their Preliminary Examination before these Boards.

The following pages contain a tabular abstract of the regulations of the various Licensing Boards, as well as a list of the Hospitals, Dispensaries, etc., attached to our Edinburgh Medical Schools; also the regulations for the Army, Indian, and Navy Medical Services. The space at our disposal does not allow of more detailed information. But, in point of fact, the regulations of all Licensing Boards now correspond much more closely than they used to do, and the regulations of the General Medical Council afford a key to the general requirements of all of them. For special information, application should always be made to the Secretaries of the Licensing Boards; or, in the case of the Universities, recourse may be had to the published Calendars.

The *Preliminary Examinations* are usually held before the commencement, and at the end, of the Winter Session,—viz., in October, March, or April—sometimes also at the end of the Summer Session. The Professional Examinations in Universities are usually after the Winter and during the Summer Sessions; in Edinburgh, however, the first Professional is held in October as well as April. The other Licensing Boards' examinations are held at various periods throughout the year. Special examinations, under circumstances of urgency, can be held at almost any time; but they, of course, entail considerable addition to the expense.

COURSE OF STUDY REQUIRED BY THE VARIOUS BOARDS OF THE UNITED KINGDOM.

	Age.	Anatomy.	Dissections.	Chemistry.	Practical Chemistry.	Materia Medica.	Physiology or Institutes of Medicine.	Surgery.	Practice of Medicine.	Midwifery.	Medical Jurisprudence.	Pathology or Morbid Anatomy.	Botany.	Natural History.	Practical Pharmacy.	Clinical Surgery.	Clinical Medicine.	Hospital Attendance.	Practical Midwifery.	Dispensary or Out-door Practice.	Vaccination.
	Years.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	
Edinburgh University, M.B. & C.M., . .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24 {	8 mo.,‡ or 6 cas.	} 6	
University of Glasgow, M.B. & C.M., . .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
University of Aberdeen, M.B. & C.M., .	21	6	6	6	3	6	6	6	6	6	3		3	3	3	6	6	24	do.	6	
University of St Andrews, M.B. & C.M., .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
London University, M.B., ...	21	6	12	6	1 crs.	1 crs.	6	6	6	1 crs.	1 crs.	1 crs.			1 crs.	2 yrs.	2 yrs.	4 yrs.	20 cas.	6	
University of Durham, M.B. & M.D., . .	21												3								
Dublin University, M.B., ...		6	6	6	3	3	3	6	6	6	3		3				9	24	6 mo.		
„ „ Surgical Diploma, .		12	18	6	3	6	18	12	6	6	3		3			27	27	27			
The Queen's University of Ireland, M.D.,		12	12	6	3	6	12	6	6	6	3		3	3	3 mos.	12	12	24	3 mo.		
Royal College of Physicians, London, .	21	12	12	6	3	3	12	6	12	3	3	6	3		3	9	9	24	20 cas.		
Royal College of Physicians, Edinburgh,	21	6	6	6	3	3	6	6	6	3	3	3	3		3	3	6	24	6cases		
King and Queen's Col. of Phys. Ireland, .	21	6	12	6	6	6	6	6	6	6	6		6			6	21	27	6 mo.		
Royal College of Surgeons, London,* . .	21	12	12	6		3	12*	12	6	3					3	27*	9*	33			Cert.
Royal College of Surgeons, Dublin, . .	21	18	18	6	6	3	18	18	6	3	3					18	9	27			
Royal College of Surgeons, Edinburgh, .	21	12†	12	6	3	3	6	6†	6	3	3	3			3	9†	9	24	6 cas.	6	Cert.
Faculty of Phys. and Surgeons, Glasgow,	21	12	12	6	3	3	3	6 or 12	6	3	3				3	6 or 12	6	24	6 cas.		
For Triple Qualification by Royal Colleges of Phys. and Surgs. of Edinburgh, and Faculty of Phys. and Surgs. of Glasgow, ...	21	6	12	6	3	3	6	6	6	3	3	3			3	9	9	24	6 cas.	6	Cert.
Apothecaries' Hall, England, ...	21	12	6	6	3	3	6		12	3	3	6	3		Appr.		27	27	20 cas.		9 mo.
„ „ Ireland, ...	21	6	12	6	3	3	6	6	6	6	3		3		Appr.	9	18	27	20 cas.		

English Poor-Law Board.—Candidates for the appointment of Medical Officer are required to be registered under the Medical Act, and must be legally qualified to practise both Medicine and Surgery, in virtue of Diplomas or Licenses granted by competent legal authority in England, Scotland, or Ireland.

Information respecting exceptions to these regulations under various circumstances, and other details as to the order in which, according to some Licensing Bodies, the courses should be taken out, etc., must be obtained by consulting the published Charts of the Colleges, etc. Students should apply to the Secretary to each Board which they intend to pass for a detailed copy of its Regulations.

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* Students from the Schools of Scotland are admitted to examination at the Royal College of Surgeons of England, if they have followed the course of study required by the regulations of the Royal College of Surgeons of Edinburgh. Students in Scotland, therefore, are not required to attend more than one course of Physiology, six months Clinical Surgery, six months Clinical Medicine, and twenty-four months Hospital.

† Or Candidates may take six months Lectures and eighteen months Dissections. A third Course of Surgery is required, but it may be either Principles and Practice of Surgery or Clinical Surgery.

‡ In lieu of the above, the University of Edinburgh requires, as an alternative, attendance on at least Twelve Cases of Labour under the superintendence of a registered Medical Practitioner.

MEDICAL SCHOOLS OF SCOTLAND, 1892–93.

WINTER SESSION.

SUBJECTS.	UNIVERSITY OF EDINBURGH.	SCHOOL OF MEDICINE, EDINBURGH.	UNIVERSITY OF GLASGOW.	ANDERSON'S COLL. MED. SCHOOL, GLASGOW.	ST MUNGO'S COLLEGE, GLASGOW.	WESTERN MEDICAL SCHOOL, GLASGOW.	UNIVERSITY OF ABERDEEN.	UNIVERSITY OF ST ANDREWS.
Anatomy, Systematic and Practical, with Demonstrations.	Prof. Sir W. Turner.	Dr J. Symington and Mr Macdonald Brown.†	Professor Cleland.	Dr A. M. Buchanan.	Prof. Clark and Demonstrators.	...	Professor Reid.	Prof. Paterson, Dundee.
Physiology, or Institutes of Medicine, and Practical Physiology.*	Professor Rutherford.	Dr N. Paton.†	Professor M'Kendrick.	Dr D. Campbell Black.	Prof. John Barlow.	...	Professor M'William.	Prof. Pettigrew, St Andrews, Prof. Reid, Dundee.
Chemistry, and Practical Chemistry.	Professor Crum Brown.	Dr Macadam, Mr King, Mr I. Macadam, Mr. R. Paterson, Dr Aitken, and Dr Readman.	Professor J. Ferguson.	Professor J. Robertson Watson	Professor James M. Milne.	A. B. Robertson	Prof. Japp.	Professor Purdie, St Andrews, Professor Frankland, Dundee.
Materia Medica & Therapeutics.	Professor Fraser.	Drs Craig & Stockman.†	Professor Charteris.	Dr Napier.	Prof. John Dougall.	...	Professor Cash.	...
Practice of Medicine.	Professor Grainger Stewart.	Drs Wyllie, James, Affleck, Bramwell, G. A. Gibson, and Philip.†	Professor Gairdner.	Dr S. Gemmell.	Professor Robertson.	Dr Cowan Leea.	Professor Finlay.	...
Surgery.	Professor Chiene.	Mr Cathcart, Mr Caird, & Mr Hodsdon.	Professor William Macewen.	Dr Dunlop.	Prof. Knox.	R. H. Parry.	Professor A. Ogston.	Dr MacEwan, Dundee.
Midwifery, etc.	Professor Simpson.	Drs Milne Murray, Matheson, & Haultain.	Professor Leishman.	Dr W. L. Reid.	Prof. Stirton (in Summer).	Drs J. Stuart Nairne and H. St Clair Gray.	Professor Stephenson.	...
Physics.	Professor Tait.	Dr Dawson Turner.	Lord Kelvin and M. Maclean, M.A.	...	Prof. Blyth	...	Prof. Niven.	Prof. Butler, St Andrews, Prof. Steggall, Dundee.
Natural History, and Practical Natural History.	Professor Ewart.	Mr J. Arthur Thomson.	Professor Young.	...	Prof. E. E. Prince.	...	Professor A. Nicholson.	Prof. M'Intosh. St Andrews, Prof. Thompsoo, Dundee.
Botany and Practical Botany.	Professor Bayley Balfour.	Mr M'Alpine.	...	Prof. King.	Dr Swanson.	...	...	Prof. Geddes, Dundee. Mr Robertson. St Andrews.
General and Practical Pathology.	Professor Greenfield.	Dr A. Bruce, Dr W. Russell, and Dr Leith.	Dr J. Coats, Lecturer.	At Royal or Western Infirmary.	Dr J. L. Steven.	At Western Infirmary.	Professor Hamilton.	...
Clinical Medicine.	Professors G. Stewart, Fraser, Greenfield, and Simpson on Diseases of Women.	Drs Wyllie, Affleck, Smart, and James. Dr H. Croom for Diseases of Women.‡	Prof. M'Call Anderson and Prof. Gairdner.	Physicians of the Royal or Western Infirmary.	Prof. M'Vail and Physicians of the Royal Infirmary.	Physicians of the Western Infirmary.	Prof. Finlay and Drs Fraser and Blaikie Smith.	Drs J. B. Macleod and A. M. Stalker, Dundee.
Clinical Surgery.	Professor Annandale.	Mr Duncan and Mr Miller.†	Prof. George Buchanan and Prof. Macewen.	Surgeons of the Royal or Western Infirmary.	Surgeons of the Royal Infirmary.	Surgeons of the Western Infirmary.	Drs Ogston, Garden, and Booth.	Drs MacEwen and Steele Moon, Dundee.
Medical Jurisprudence and Public Health.	Prof. Sir Douglas Maclagan.	Dr Littlejohn.	In Summer, Prof. Simpson.	Hygiene and Public Health — Dr P. Caldwell Smith and Prof. J. Robertson Watson.	Professor Glaister and Dr M'Vail.‡	...	In Summer.	...

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* This course is equivalent to that given under the name of General Anatomy and Physiology in the English Schools
ecial schedules are issued by the London Boards for their Scotch Students, which should always be inquired for.

† These are not conjoint courses, but separate ones by the gentlemen named. ‡ This is a joint course.

In connexion with the University of Edinburgh, during the Winter Session classes of Practical Materia Medica (including Pharmacy), Physiology, and Practical Pathology are taught by the Professors of these subjects and their Assistants; lectures and clinical instruction on Diseases of Children, at Royal Hospital for Sick Children, are given by Dr James Carmichael and Dr Playfair; and on Comparative Embryology by Mr George Brook.

Lectures are given in the School of Medicine, Edinburgh, during the Winter Session on Biology by Mr A. Thomson and Mr Turnbull; on the Diseases of the Ear by Dr Kirk Duncanson; on Botany by Mr M'Alpine; on Diseases of the Ear and Throat by Dr P. M'Bride; on Diseases of the Eye by Mr George Berry; on Diseases of the Skin by Dr Allan Jamieson and Dr Stewart Stirling; on Diseases of Children by Mr J. Bell, Dr Burn Murdoch, and Dr M. Dunlop; on Infancy and Childhood by Drs John Thomson and J. W. Ballantyne; on Diseases of the Chest by Dr Philip; on Vaccination by Drs Husband and Buist; on Diseases of the Tropics and Climatology by Dr Felkin; on Systematic Gynæcology by Dr Halliday Croom; and on Practical Midwifery and Clinical Gynæcology by Drs Berry Hart and Brewis.

There are Special Classes for Women on Chemistry, Anatomy, Biology, Physics, Practice of Physic, Surgery, Materia Medica, Institutes of Medicine, Physiology, Pathology, Clinical Medicine, Clinical Surgery, Diseases of Children, Diseases of the Chest, Vaccination, Diseases of the Tropics and Climatology, Practical Gynæcology, and Natural History. In connexion with the University of Glasgow, Dr Yellowlees lectures on Mental Diseases, and Dr T. Reid on Diseases of the Eye, both in Summer. Practical Surgery is taught during the Winter Session in the University of Aberdeen by Professor Ogston and Assistant.

Lectures are given in St Mungo's College, Glasgow, during the Winter Session, on Advanced Embryology by Prof. Prince; on Gynæcology by Dr Kelly; on Ophthalmology by Prof. Wolfe; and on Diseases of the Throat and Nose by Dr Newman.

Lectures are given in Anderson's College Medical School during the Winter Session, on Ophthalmic Medicine and Surgery by Dr Meighan, and on Zoology by Dr G. Bell Todd. In the Western Medical School Dr A. Brown Kelly lectures in Winter on Diseases of the Throat and Nose.

Clinical Instruction in Mental Diseases is given in connexion with University College, Dundee, by Dr Rorie, Royal Asylum, Dundee.

MEDICAL SCHOOLS OF SCOTLAND, 1893.

SUMMER SESSION.

SUBJECTS.	UNIVERSITY OF EDINBURGH.	SCHOOL OF MEDICINE, EDINBURGH.	UNIVERSITY OF GLASGOW.	ANDERSON'S COLLEGE MEDICAL SCHOOL, GLASGOW.	ST MUNGO'S COLLEGE, GLASGOW.	WESTERN MEDICAL SCHOOL, GLASGOW.	UNIVERSITY OF ABERDEEN.
Practical Anatomy and Demonstrations.	Prof. Sir Wm. Turner.	Dr J. Symington and Mr M. Brown.*	Professor Cleland.	Dr A. M. Buchanan.	Prof. Clark and Demonstrators.	...	Professor Reid.
Botany.	Professor Bayley Balfour.	Mr A. N. M'Alpine.	Professor F. O. Bower.	Prof. King.	Dr James Swanson.	...	Professor Trail.
Materia Medica and Therapeutics and Practical Materia Medica.	Professor Fraser.	Dr Craig and Dr Stockman.*	Professor Charteris.	Dr Napier.	Professor Dougall (in Winter).	...	Professor Cash.
Obstetrical and Gynecological Operations.	Professor Simpson.	Drs Croom, B. Hart, and F. Barbour.*	Professor Leishman.	Dr W. L. Reid.	Prof. James Stirton.	Drs J. Stuart Nairne and H. St Clair Gray.	Prof. W. Stephenson.
Medical Jurisprudence and Public Health.	Professor Sir Douglas Maclagan.	Dr Littlejohn.†	Professor Simpson.‖	Dr T. Kennedy Dalziel.	Prof. Glaister and Dr M Vail.‡	...	Professor M. Hay.
Practical Anatomy.	Prof. Sir Wm. Turner.	Dr J. Symington and Mr M. Brown.	Professor Young.	...	Prof. E E. Prince.	...	...
Practical Physiology, incl. Histology.	Professor Rutherford.	Dr Noël Paton.	Professor M'Kendrick.	Dr D. Campbell Black.	Prof. Barlow.	...	Professor M'William.
Practical Pathology.	Professor Greenfield.	Dr A. Bruce, Dr W. Russell, and Dr Leith.	Dr Joseph Coats.	At Royal or Western Infirmary.	Dr J. L. Steven.	At Western Infirmary.	Professor Hamilton.
Organic and Practical Chemistry.	Professor Crum Brown.	Dr Macadam, Mr King, Mr I. Macadam, Mr R. Paterson, Dr A. P. Aitken, and Dr Readman.*	Professor J. Ferguson.	Professor J. Robertson Watson.	Professor James M. Milne.	A. B. Robertson.	Professor Japp.
Operative Surgery and Surgical Anatomy.	Professor Chiene.	Dr C. W. MacGillivray, Mr C. W. Cathcart, Mr Caird, and Mr Hodsdon.*	Professor William Macewen.	Dr Dunlop.	Dr Whitson.	R. H. Parry.	Professor A. Ogston.
Mental Diseases.	Dr Clouston.	Dr J. B. Tuke.	Dr Yellowlees.	Dr Carswell.	Dr A. C. Clark.	...	Dr Reid.
Natural History.	Professor Ewart.	Mr J. Arthur Thomson.	Professor Young.	...	Prof. E. E. Prince (in Winter).	...	Professor Nicholson.
Clinical Medicine.	Professors G. Stewart, Fraser, Greenfield, and Simpson on Diseases of Women.	Drs Wyllie, Affleck, Smart, and James. Dr H. Croom for Diseases of Women.‡	Prof. M'Call Anderson and Prof. Gairdner.	Physicians of the Royal or Western Infirmary.	Prof. M'Vail and Physicians of the Royal Infirmary.	Physicians of Western Infirmary.	...
Clinical Surgery.	Professor Annandale.	Mr Duncan and Mr Miller.	Prof. George Buchanan and Prof. Macewen.	Surgeons of the Royal or Western Infirmary.	Surgeons of the Royal Infirmary.	Surgeons of West. Infirmary.	...

In connexion with the University of Edinburgh during the Summer Session, classes of Practical Botany, Practical Natural History, and Practical Hygiene, are taught by the Professors of these subjects and their Assistants; lectures and clinical instruction on Diseases of Children, at Royal Hospital for Sick Children, are given by Dr J. Carmichael and Dr Playfair; on Diseases of the Eye by Dr D. Argyll Robertson; and on Comparative Embryology by Mr George Brook.

In connexion with St Mungo's College, during the Summer Session, Dr Adams will lecture on Surgical Diseases of Children, and Dr Black on Medical Diseases of Children; Dr Love on Otology; Dr Morton on Dermatology; and Dr Workman on Bacteriology.

In connexion with Anderson's College Medical School, during the Summer Session Dr Meighan will lecture on Ophthalmic Medicine and Surgery; Dr Barr on Aural Surgery; Dr Macintyre on Diseases of the Throat and Nose: Dr Carswell on Mental Diseases; and Dr Freeland Fergus on Physics.

In Aberdeen, Special Courses of Instruction are given during the Summer Session on Insanity, Diseases of Children, of the Eye, Ear, and Throat, of the Skin, and in Fevers (City Hospital).

* These are not conjoint courses, but separate ones by the gentlemen named.
† Dr Littlejohn gives courses during both the Winter and Summer Sessions.
‡ This is a joint course.
‖ In Winter.

*** For additional Summer Courses on special subjects, see the Prospectus of each School.

In connexion with the Summer Session of the Medical Schools in Scotland, instruction in Vaccination is given at the Royal Public Dispensary, Edinburgh, both Summer and Winter, by Dr Husband; and in the Western Dispensary and Cowgate Dispensary, by Dr Buist; at the Faculty Hall, Glasgow, on Mondays at 2, by Dr Thomson; at the Royal Infirmary, Glasgow, on Mondays and Thursdays at 12 o'clock, by Dr Thomson; and in Aberdeen at the Vaccine Institution.

Medical Psychology and Insanity are taught in Summer by Dr Clouston and Dr J. B. Tuke in Edinburgh, in Glasgow by Dr Yellowlees and Dr A. C. Clark, and in Aberdeen by Dr Reid.

Practical Medicine and Physical Diagnosis by Dr James, Dr Affleck, Dr Gibson, Dr Byrom Bramwell, and Dr Philip in Edinburgh.

Diseases of Children by Mr J. Bell, Dr Burn Murdoch, and Dr M. Dunlop in School of Medicine, Edinburgh; in St Mungo's College by Drs Black and Adams, Glasgow; by Prof. Stephenson at Children's Hospital, Aberdeen.

Diseases of Infancy and Childhood by Dr John Thomson and Dr J. W. Ballantyne in School of Medicine, Edinburgh.

Diseases of the Chest by Dr R. W. Philip in School of Medicine, Edinburgh.

Diseases of the Eye by Mr George Berry in School of Medicine, Edinburgh, Dr M'Kenzie Davidson in Aberdeen, and by Dr Thomas Reid, Dr Meighan, and Prof. Wolfe in Glasgow.

Diseases of the Ear by Dr Kirk Duncanson, and Diseases of the Ear and Throat by Dr M'Bride in School of Medicine, Edinburgh; and of the Ear by Dr J. Kerr Love and Dr Barr in Glasgow; of the Nose and Throat by Dr Macintyre in Glasgow; and in Aberdeen, Ear and Larynx Diseases by Dr M'Kenzie Booth.

Diseases of the Throat and Nose by Dr Newman and Dr John Macintyre in Glasgow.

Diseases of the Skin by Dr Allan Jamieson and Dr Stewart Stirling in School of Medicine, Edinburgh, and in Aberdeen by Dr Garden, and in Glasgow by Dr Alex. Morton.

Dental Surgery by Dr W. H. Gray in Glasgow, and Dr Williamson in Aberdeen.

Laryngology and Medical Ophthalmology in Edinburgh by Dr John Wyllie.

Diseases of the Tropics and Climatology in Edinburgh by Dr R. W. Felkin.

Lectures on Public Health are delivered during the Summer Session in Aberdeen by Professor Hay; in School of Medicine, Edinburgh, by Dr Littlejohn; in Glasgow by Dr P. Caldwell Smith, and by Prof. Glaister and Dr J. C. M'Vail.

Systematic Gynæcology in School of Medicine, Edinburgh, by Dr Brewis; and in St Mungo's College, Glasgow, by Dr Kelly.

Clinical Gynæcology and Practical Midwifery in School of Medicine, Edinburgh, by Drs Croom and Brewis.

EDINBURGH ASSOCIATION FOR THE UNIVERSITY EDUCATION OF WOMEN.—Founded in 1867.

The object of this Association is to provide a substitute, in the meantime, for the University Education of Women, modelled principally after the system of the Arts Faculty of the University of Edinburgh, which University grants certificates in Arts to those students who have attended a certain number of classes in the Association, and have passed the necessary examinations. Membership is open to all subscribers. *Hon. Secretary*, Miss Louisa Stevenson, 13 Randolph Crescent. *Lecture-rooms*, 15 Shandwick Place.

EDINBURGH SCHOOL OF MEDICINE FOR WOMEN.

This School was established in 1886, on the opening of the Examinations of the Conjoint Scottish Colleges to Women. It occupies premises in Surgeon Square, which are already of historic interest, having been built more than a century ago for a Medical School, and so used, with a short interval, ever since. Its lecture theatre, lighted from above and seated for about two hundred students, has been occupied in succession by Messrs Lizars, Allen Thomson, Lonsdale, Handyside, Spence, and a number of other distinguished men; and its lofty anatomy room is one of the best in Edinburgh. For Clinical Teaching its Students have the exclusive use of Leith Hospital, which contains more than a hundred beds, of which a number are set apart for Fevers; and the Fees have been fixed on the lowest scale on which it is possible at the same time to adequately remunerate first-rate Lecturers, and to place the School on an ultimately self-supporting basis. *Secretary*, Miss Black, School of Medicine, Surgeon Square.

THE MEDICAL COLLEGE FOR WOMEN, 30 Chambers Street, Edinburgh.

This College was founded and is conducted by the "Scottish Association for the Medical Education of Women," with the special object of affording to Lady Students exactly the same facilities for Medical Study as are offered to Male Students in the School of Medicine, Edinburgh. The arrangements for Teaching and the Fees charged are similar to those of the School of Medicine, so that, generally speaking, the regulations of that School may be considered as applicable to the Students of the College. The College affords to Ladies desirous of studying Medicine an opportunity of prosecuting a complete Course of Medical Study, or of attending any individual Class or Classes. The Classes are also open to all Ladies whether studying Medicine or not. *Secretary*, Miss D. M. Scott.

QUEEN MARGARET COLLEGE, GLASGOW.—University Education of Women.

The Universities Commissioners have empowered the Courts of the several Universities of Scotland to admit Women to graduation in such Faculty or Faculties as each Court may think fit, and to provide for the education of candidates either in mixed classes of men and women, or in separate classes. Glasgow University Court has preferred the second of these alternatives, and, at the instance of the Council of Queen Margaret College, has accepted an offer made by the Council to hand over to the University the government, the endowments present and prospective, and, with the consent of the donor, Mrs Elder, the buildings of Queen Margaret College—the endowments and buildings to be reserved for the exclusive Education of Women, and the College to become incorporated with the University as its Department for Women. By this step has been secured the amplest fulfilment of the object continually kept in view by the founders, viz., the provision of a University Education for Women, for now a full curriculum in Arts and in Medicine is given in Queen Margaret College, to women, by University Professors and Lecturers, and attendance on the classes qualifies for admission to the Degrees Examinations of the University. Women have now their own class-rooms, laboratories, and reading rooms, as well as access to the University Library and Museum. They have also access to the wards of the Royal Hospital for Sick Children, and Glasgow Maternity Hospital; while 110 beds are reserved in the Royal Infirmary for Clinical Instruction for Queen Margaret College Students only. *Acting Hon. Secretary*, Miss Galloway.

LIST OF HOSPITALS, DISPENSARIES, ETC., IN CONNEXION WITH THE MEDICAL SCHOOLS OF EDINBURGH.

Royal Infirmary, including Lock Hospital. 680 Beds and 30 Cots. Visits daily from 11 till 2 p.m. Consulting Physicians, Dr George W. Balfour, Professor Sir Douglas Maclagan, and Dr Claud Muirhead; Dr Alexander Keiller (for Diseases of Women). Physicians, Professors Grainger Stewart, Fraser, and Greenfield; Drs D. J. Brakenridge, John Wyllie, J.

O. Affleck, and Andrew Smart; Professor Simpson and Dr J. Halliday Croom (for Diseases of Women). Assistant Physicians, Drs Alex. James, Byrom Bramwell, George A. Gibson, Alexander Bruce, R. W. Philip, William Russell, and J. Murdoch Brown; Drs D. Berry Hart and A. H. F. Barbour (for Diseases of Women). Extra Physician, Dr Allan Jamieson (for Diseases of the Skin). Consulting Surgeons, Dr Gillespie, Dr P. H. Watson, and Mr Joseph Bell. Consulting Dental Surgeon, Dr John Smith. Surgeons, Professors Annandale and Chiene, Mr John Duncan, Mr A. G. Miller, and Dr P. H. Maclaren. Assistant Surgeons, Drs Chas. W. MacGillivray, J. M. Cotterill, Chas. W. Cathcart, Francis M. Caird, J. W. B. Hodsdon, and J. Shaw M'Laren; Ophthalmic Surgeons, Dr Argyll Robertson and Mr George A. Berry. Surgeon to the Ear and Throat Department, Dr P. M'Bride. Assistant Physician for Diseases of the Skin, Dr Norman Walker. Assistant Ophthalmic Surgeons, Dr George Mackay and W. George Sym. Assistant Surgeon to the Ear and Throat Department, Dr R. M. Johnston. Dental Department, Surgeons of the Edinburgh Dental Hospital and School. Pathologists, Drs R. F. C. Leith and Robert Muir. Registrars,—*Medical*, Dr A. L. Gillespie; *Surgical*, Dr K. M. Douglas.

CONVALESCENT HOUSE, Corstorphine. Surgeon, Mr Cotterill. Extra Surgeon, Mr Alex. Matthew.

CHALMERS HOSPITAL FOR THE SICK AND HURT (Public and Private Wards). 40 Beds for medical and surgical patients. In Private Wards the patients are charged 5s. per diem for board. Minimum charge, £1, 1s. Physician, Dr George W. Balfour. Surgeon, Dr P. H. Watson. Resident Medical Officer, Harry Rainy, M.B., C.M. Secretary, J. Wilson Brodie, C.A., 13 Queen Street.

ROYAL MATERNITY AND SIMPSON MEMORIAL HOSPITAL. 30 Beds; about 300 in-patients and 560 out-patients yearly. Consulting Physicians, Drs Moir, Graham Weir, and Keiller. Consulting Surgeon, Professor Annandale. Physicians, Professor Simpson, Drs Halliday Croom, Underhill, and Berry Hart. Assistant Physicians, Drs Freeland Barbour and Milne Murray. Secretary and Treasurer, Andrew Scott, C.A.

ROYAL EDINBURGH HOSPITAL FOR SICK CHILDREN. 80 Beds; number of patients for 1891, 6736. Consulting Physicians, Dr Graham Weir, Dr Geo. W. Balfour, Dr R. Peel Ritchie, and Professor T. Grainger Stewart. Consulting Surgeon, Professor Annandale. Surgeon, Mr Joseph Bell. Pathologist, Dr Alexander Bruce. Ordinary Physicians, Dr James Carmichael, Dr John Playfair, and Dr Burn Murdoch. Extra Physicians, Dr G. H. Melville Dunlop, Dr John Thomson, and Dr A. S. Cumming. Surgeon-Dentist, Dr John Smith. Ophthalmic Surgeon, Dr Argyll Robertson. Resident Physicians, Drs J. W. Beilby and J. A. Robertson. Matron, Miss Bird. Honorary Secretaries, Messrs Henry & Scott, W.S., 20 St Andrew Square.

ROYAL PUBLIC DISPENSARY AND VACCINE INSTITUTION. About 12,000 patients annually. Consulting Physician, Dr George Balfour. Consulting Surgeon, Dr Littlejohn. Medical Officers, Drs W. Husband, D. Wilson, Andrew, P. Young, A. Black, Dunlop, Blaikie, Webster, Wallace, Haultain, and Stiles. Consulting Physician-Accoucheur, Dr Keiller. Midwifery and Diseases of Women, Drs Andrew, Young, and Dunlop. Vaccination, Dr W. Husband. Diseases of the Ear and Throat, Dr Blaikie. Mental Diseases, Dr J. Batty Tuke, senr. Apothecary, Mr W. Duncan. Clinique daily at 3 P.M. Vaccination, Wednesday and Saturday, 12 noon. Midwifery and Diseases of Women, Tuesday and Friday, 1 P.M. Laboratory, 3 P.M. and 7 P.M. Secretary, R. C. Gray, S.S.C. James Andrew, M.D., Secretary to the Medical Officers.

NEW TOWN DISPENSARY, 17 Thistle Street. About 10,000 patients annually. Medical Officers, Drs Thyne, Dunlop, Stockman, Miller, Gulland, and Miles. Acting Physicians-Accoucheur, Drs Wood and Ferguson. Superintendent of Vaccination, Dr Cadell. Diseases of the Ear and Throat, Dr Horsley. Diseases of the Eye, Dr Maddox. Diseases of Women, Dr Brewis. Diseases of Children, Dr Thomson. Mental Diseases, Dr Batty Tuke, jun. Clinique daily at 3 P.M. Vaccination on Tuesdays and Fridays at 12.

THE EDINBURGH PROVIDENT DISPENSARY, Marshall Street. Upwards of 9500 patients annually. Consulting Physician, Dr Andrew Smart. Consulting Surgeon, Dr Joseph Bell. Dental Surgeon, R. Urquhart. Medical Officers, Dr F. Troup, Dr A. Matheson, Dr J. Robertson, Dr E. Price, Dr G. Price, Dr Cullen, Dr Booth, Dr G. Mowat, Dr J. Aitken Clark, Dr Thyne, and Dr J. Robertson. Assistant Medical Officer, Wm. Wood, M.B., C.M. Secretary, R. Urquhart. Vaccination, Dr Wood (Tuesday and Friday at 1 o'clock). Diseases of Women and Children, Dr Matheson (Tuesday and Friday at 1 o'clock). Out-door practice and Practical Midwifery daily. Surgical Instrument Maker, A. Young, Forrest Road. Janitor, T. Johnstone. Attendance at this Institution qualifies for the University of Edinburgh, the other Universities, and the Royal Colleges of Physicians and Surgeons.

WESTERN DISPENSARY, Chalmers Institute, Ponton Street, Fountainbridge. Chairman, James Simson. Acting Committee, Mrs Black, Miss Thomson, Miss M. Douglas, S. Henderson, Stair Kerr, Dr Bruce Bremner, Wm. Brown, A. Dickison, Dr Pringle, E. Mather, Wm. Manuel, J. Arnot, Rev. G. D. Low, M.A., J. S. Ferrier, Robert Simson, Miss Reid. Consulting Physician, Dr A. Peddie. Consulting Surgeon, Dr Joseph Bell. Consulting Physician for Diseases of Women, Dr Croom. Physicians, Drs R. A. Fleming, John Stevens, and Gordon Sanders. Surgeon, Dr Alexis Thomson. Diseases of the Ear and Throat, Dr Hunter Mackenzie. Diseases of Women, Dr Ballantyne. Vaccination Officer, Dr J. B. Buist. Midwifery, Dr Ballantyne. Diseases of the Eye, vacant. Assistant to Specialists, Dr Farquharson. Dispenser, A. T. Whyte. Secretary to Medical Board, Dr J. Murdoch Brown. Treasurer, James Simson, 51 Manor Place. Open daily from 3.45 to 4.45 P.M. Diseases of Women, Monday and Thursday, 4.45 P.M. Diseases of Throat and Ear, Monday, 4 P.M. Vaccination, Thursday, 3 P.M. Special Surgical Cases, Wednesday, 4 P.M. Diseases of the Eye, Thursday, 4 P.M.

ROYAL ASYLUM FOR THE INSANE. About 850 patients, over 300 of whom are private patients. Physician, Dr Clouston.

EYE, EAR, AND THROAT INFIRMARY, 6 Cambridge Street, Lothian Road, Edinburgh. Consulting Surgeon, Joseph Bell, F.R.C.S.E. Surgeons, J. J. Kirk Duncanson, M.D., F.R.C.P.E., G. Hunter Mackenzie, M.D., William George Sym, M.D., and Alexander Black, M.D. Eye Clinique daily at 1 P.M. Ear Clinique on Mondays, Thursdays, and Saturdays, at 12 noon. Throat Clinique on Tuesdays and Fridays at 4 P.M.

EYE DISPENSARY OF EDINBURGH, 31 Chambers Street. About 1500 patients annually. Surgeons, Mr Berry and Mr Caverhill. Assistant Surgeon, Dr Mackay. Open Mondays, Wednesdays, and Fridays, at 1 P.M. Clinical Instruction is given in the Diagnosis and Treatment of Diseases of the Eye (including minor operations) by the Surgeons in charge. Fee for three months' course, £1, 1s.

INCORPORATED EDINBURGH DENTAL HOSPITAL AND SCHOOL, 5 Lauriston Lane. Consulting Physician, Alexander Peddie, M.D., F.R.C.P.E. Consulting Surgeon, Joseph Bell, F.R.C.S.E. Consulting Dental Surgeon, John Smith, M.D., LL.D., F.R.C.S.E. Lecturers, Messrs Andrew Wilson, W. Bowman Macleod, and G. W. Watson. Dental Surgeons, W. Bowman Macleod, A. Wilson, M. Macgregor, G. W. Watson, J. S. Durward, James Mackintosh, and W. Forrester. Assistant Dental Surgeons, John S. Amoore, J. G. Munro, John Turner, David Monroe, F. Page, and T. Gregory. Extra Assistants, Sewill Simmons and R. N. Hannah. Tutorial Dental Surgeon, F. Turnbull. Chloroformists, J. M. Farquharson, M.B., C.M., W. Lundie, M.B., C.M., B.Sc., and Mathieson Cullen, M.B., C.M. Dean, W. Bowman Macleod. Hon. Treasurer, Thomas Wallace, 87 Princes Street. Hon. Secretary, Lindsay Mackersy, W.S., 3A North St David Street. Daily, 9 to 10 A.M. Average number of patients, 8000 per annum.

ARMY MEDICAL DEPARTMENT.

WAR OFFICE, LONDON.

SCHEDULE OF QUALIFICATIONS NECESSARY FOR CANDIDATES DESIROUS OF OBTAINING COMMISSIONS IN THE ARMY MEDICAL STAFF, WITH THE CONDITIONS OF SERVICE.

APPOINTMENT.

1. Every candidate for a commission in the Army Medical Staff must be 21 years and not over 28 years of age at the date of commencement of the competitive examination. He must produce an extract from the register of his birth, or, in default, a declaration, made before a magistrate by one of his parents or guardians, giving his exact age. He must also produce a recommendation from some person of standing in society—not a member of his own family—to the effect that he is of regular and steady habits, and likely in *every* respect to prove creditable to the Department if a commission be granted; and a certificate of moral character from the parochial clergyman, if possible.

2. He must possess two diplomas or licenses, recognised by the General Medical Council, one to practise Medicine and the other Surgery, and must be registered under the Medical Act in force in the United Kingdom at the time of his appointment. A candidate, however, who holds a single diploma from the Society of Apothecaries, obtained under the conditions of the Act of 1886, will be deemed to possess the double qualification required.

2A. After the 31st of March 1893, every candidate for a commission in the Medical Staff of the Army must produce, in addition to the documents specified in paragraphs 1 and 2—

(1.) A certificate of having discharged the duties of a medical clinical clerk during 6 months, and of a surgical dresser during another period of 6 months, of which, in each case, not less than three months must have been spent in the wards of a hospital.

(2.) A certificate of having attended a course of instruction during not less than 3 months at an Ophthalmic Hospital, or the Ophthalmic Department of a general hospital, which course shall include instruction in the errors of refraction.

3. The candidate must sign a declaration upon honour that both his parents are of unmixed European blood, and that he labours under no mental or constitutional disease, or hereditary tendency thereto, nor any imperfection or disability that can interfere with the efficient discharge of the duties of a medical officer in any climate: also that he does not hold, and has never held, any commission or appointment in the public services.

4. His physical fitness will be determined by a Board of Medical Officers, who are required to certify that his vision is sufficiently good to enable him to pass the tests laid down by Regulations. The Board must also certify that he is free from organic or other disease, and from constitutional weakness, or other disability of any kind likely to unfit him for military service in any climate.

Certificates of age, registration of diplomas, etc., and of character, must accompany the declaration when signed and returned.

5. A public and open competition will be held twice in the year for the admission of qualified candidates as probationers. The number of appointments so competed for will be not less than half of the number of vacancies which shall have arisen in the last completed half-year ending on the 30th June or 31st December. It will be competent for the Secretary of State for War to fill up the remaining number from such qualified candidates as may be proposed by the governing bodies of Public Schools of Medicine in the United Kingdom or in the Colonies as he may think proper. Every candidate so proposed must be

certified by the governing body proposing him to be duly qualified according to a standard laid down by the Secretary of State, and shall be approved by the Director-General of the Army Medical Department.

The Secretary of State reserves the right of rejecting any candidate who may show a deficiency in his general education, as evinced by bad spelling or composition.

An entrance fee of £1 is required from each candidate admitted to the competition, and is payable at the conclusion of his physical examination, if pronounced fit.

No candidate will be allowed to compete on more than two occasions.

6. The Secretary of State for War will from time to time fix the order of precedence and the proportion in which the several Schools of Medicine shall be offered the nomination of candidates.

7. A Surgeon on probation, on being so nominated, will be sent to some large station for instruction in Ambulance and Medical Staff Corps duties, until the commencement of the next course of study at the Army Medical School, when he will go through such course as the Secretary of State shall decide. After passing a qualifying examination in the military medical subjects taught there, and satisfying the Director-General of the Army Medical Department that he is a person of proper skill, knowledge, and character, for permanent appointment in the Medical Staff, the Surgeon on probation will be commissioned as Surgeon-Lieutenant.

The Surgeons on probation who pass out of the Army Medical School at one qualifying examination will take precedence among each other as Surgeon-Lieutenants, as follows:—(*a.*) Those appointed on nomination according to their date of joining on probation. (*b.*) Those appointed by competition according to the last day of the competitive examination, and in order of merit, as determined by the combined results of the competitive and qualifying examinations, with priority over any joining under paragraph (*a*) on the last day of the competitive examination. Their commissions will bear the date of the day of their passing out of the Army Medical School.

EXAMINATIONS.

1. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—*a.* Anatomy and Physiology, 1000; *b.* Surgery, 1000; *c.* Medicine, including Therapeutics and the Diseases of Women and Children, 1000; *d.* Chemistry and Pharmacy, and a practical knowledge of drugs, 1000. [*N.B.*—The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of Medical and Surgical patients at the bedside. The examination in Chemistry will be limited to the elements of the science, and to its application to medicine, pharmacy, and practical hygiene.] No candidate shall be considered eligible for the Medical Staff who shall not have obtained at least *one-third* of the marks obtainable in each of the above *compulsory subjects.*

2. Voluntary subjects for examination. Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be—French and German (150 each), 300; Natural Sciences, 300. A number less than one-third of the marks obtainable in each of these voluntary subjects will not be allowed to count in favour of the candidate who has qualified in the compulsory subjects. The knowledge of Modern Languages being considered of great importance, all intending competitors are urged to qualify in French and German. The Natural Sciences will include Comparative Anatomy, Zoology, Natural Philosophy, Physical Geography, and Botany, with special reference to Materia Medica.

The appointments announced for competition will be filled up from the list of qualified candidates arranged in the order of merit, as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

After passing this examination, every successful candidate will be required to attend one course of practical instruction at the Army Medical School as a Surgeon on probation on—(1) Hygiene; (2) Clinical and Military Medicine; (3) Clinical and Military Surgery; (4) Pathology of Diseases and Injuries incident to Military Service.

All Surgeons on probation will be required to conform to such rules of discipline as the Senate may from time to time enact. and provide themselves with uniform, viz., the regulation undress and mess uniform of a surgeon-lieutenant, but without the sword, sword-belt, dress trousers, and badge of rank.

They will be required to attend the Medical Staff Mess at Netley, and to conform to the Rules and Regulations thereof.

Rank and Pay.

The ranks and daily rates of pay of the officers of the Army Medical Staff are as follows: — Surgeon-Major-General, £2, 15s.; Surgeon-Colonel, £2; Brigade-Surgeon Lieutenant-Colonel, £1, 10s., after five years in the rank, £1, 13s.; Surgeon-Lieutenant-Colonel, £1, after twenty years' service £1, 5s., after twenty-five years' service £1, 7s. 6d.; Surgeon-Major or Surgeon-Lieutenant-Colonel £1, after fifteen years' service £1, 2s. 6d.; Surgeon-Captain or Surgeon-Lieutenant, £200 a year, after five years' service £250, after ten years' service 15s. daily. Surgeon on probation, 8s.

INDIAN MEDICAL SERVICE.

REGULATIONS FOR THE EXAMINATION OF CANDIDATES FOR ADMISSION TO HER MAJESTY'S INDIAN MEDICAL SERVICE.

(*Subject to any alteration that may be determined on.*)

1. *Limits of Age.*—All natural-born subjects of Her Majesty, between 21 and 28 years of age at the date of the examination, and of sound bodily health, may be candidates. They may be married or unmarried. They must possess a Diploma or Diplomas entitling them under the Medical Acts to practise both Medicine and Surgery in Great Britain and Ireland.

2. *Declaration to be submitted.*—They must subscribe and send in to the Military Secretary, India Office, Westminster, *so as to reach that address at least a fortnight before the date fixed for the Examination*, a declaration according to a prescribed form.

3. This declaration must be accompanied by the following documents:—

a. Proof of age, either by Registrar General's certificate, or, where such certificate is unattainable, by the candidate's own statutory declaration, form of which can be obtained at the India Office, supported, if required by the Secretary of State, by such evidence as he may consider satisfactory. A certificate of baptism which does not afford proof of age will be useless.

b. A recommendation from some person of standing in society—not a member of his own family—to the effect that he is of regular and steady habits, and likely in every respect to prove creditable to the service if admitted; and a certificate of moral character from a magistrate, or a minister of the religious denomination to which the candidate belongs.

c. A certificate of registration, under the Medical Acts, of the degrees, diplomas, and licenses possessed by the candidate.

4. *Physical Examination.*—The physical fitness of each candidate will be determined previous to examination by a Board of Medical Officers, who are required to certify that his vision is sufficiently good to enable him to

perform any surgical operation without the aid of glasses. A moderate degree of myopia will not be considered a disqualification, provided it does not necessitate the use of glasses during the performance of operations, and that no organic disease of the eyes exists.

Every candidate must also be free from all other organic disease and from constitutional weakness, or other disability likely to unfit him for military service in India.

5. *Subjects for Examination.*—On producing the foregoing qualifications, the candidate will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—

	Marks.
a. Anatomy and Physiology,	1000
b. Surgery,	1000
c. Medicine, including Therapeutics, the Diseases of Women and Children,	1000
d. Chemistry and Pharmacy, and a practical knowledge of Drugs,	1000

(The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside.)

The examination in Chemistry will be limited to the elements of the science, and to its application to medicine, pharmacy, and practical hygiene.

No candidate shall be considered eligible who shall not have obtained at least *one-third* of the marks obtainable in each of the above *compulsory subjects.*

6. *Voluntary Subjects.*—Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be:—

	Marks.
French, German, and Hindustani (150 each),	450
Natural Sciences,	300

The Natural Sciences will include Comparative Anatomy, Zoology, Natural Philosophy, Physical Geography, and Botany, with special reference to Materia Medica.

A number less than one-third of the marks obtainable in any of these *voluntary subjects* will not be allowed to count in favour of a candidate who has qualified in the *compulsory subjects.*

The knowledge of modern languages being considered of great importance, all intending competitors are urged to qualify in French and German.

Candidates presenting themselves for examination in Hindustani are recommended to study some recognised text-book, such as the annotated edition of the "Taubat-un-Nasuk," which is the text used by candidates for the Indian Civil Service.

7. The appointments announced for competition will be filled up from the list of qualified candidates arranged in order of merit, as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

The Examiners in London will prepare a list in order of merit, with the marks affixed in the different subjects, to be transmitted to the Director-General and communicated to the Professors of the Army Medical School. If any candidate is found to be deficient in any particular subject, this shall be stated, in order that he may receive special instruction on the point at Netley.

8. *Course at Netley.*—After passing this examination the successful candidates will be required to attend one entire course of practical instruction at the Army Medical School in—

(1.) Hygiene.
(2.) Clinical and Military Medicine.
(3.) Clinical and Military Surgery.
(4.) Pathology of Diseases and Injuries incidental to Military Service.

These courses are to be of not less than four months' duration; but candidates who have already gone through a course at Netley as candidates for the Army Medical Service may, if thought desirable, be exempted from attending the School a second time.

9. *Pay and Uniform while at Netley.*—During the period of residence at the Army Medical School, each candidate will receive an allowance of 8s. per diem with quarters, or, when quarters are not provided, with the usual fuel and light allowances of a subaltern, to cover all costs of maintenance; and he will be required to provide himself with uniform (viz., the regulation undress uniform of a Surgeon-Lieutenant of the British Service, but without the sword).

10. All candidates will be required to conform to such rules of discipline as the Senate may from time to time enact.

11. *Examination at Netley.*—At the conclusion of the course, candidates will be required to pass an examination on the subjects taught in the School. The examination will be conducted by the Professors of the School.

The Director-General, or any Medical Officer deputed by him, may be present and take part in the examination. If the candidate give satisfactory evidence of being qualified for the practical duties of an Army Medical Officer, he will be eligible for a Commission as Surgeon-Lieutenant.

12. *Position on List, how determined.*—The position of the candidates on the list of Surgeon-Lieutenants will be determined by the combined results of the preliminary and of the final examinations, and, so far as the requirements of the service will permit, they will have the choice of Presidency in India according to their position in that list.

13. No candidate will be permitted to compete more than twice.

MEMORANDUM REGARDING THE POSITION OF OFFICERS TO BE APPOINTED TO HER MAJESTY'S INDIAN MEDICAL SERVICE.

Passage to India.—Officers on appointment will, if possible, be provided with passage to India by troop-ship; but when troop-ship accommodation is not available, passage at the public expense will be provided by steamer, or a passage allowance will be granted, if preferred. A charge for messing during the voyage will be made at the rate of 2s. a day. This payment will not include the cost of liquors, which will be charged for as extras.

All Officers who shall neglect or refuse to proceed to India under the orders of the Secretary of State for India within two months from the date of leaving Netley, will be considered as having forfeited their appointments, unless special circumstances shall justify a departure from this regulation.

Pay previous to Arrival in India.—The rate of pay drawn by Surgeon-Lieutenants from the date of passing the final examination at the Army Medical School until arrival in India will be 10s. a day.

Pay at the above rate will be issued in this country up to the date of embarkation, and an advance of two months' pay at the same rate will also be made prior to embarkation.

Grades and Precedence.—The grades of Officers in the Indian Medical Service are six in number, viz.:—1. Surgeon-Major-General. 2. Surgeon-Colonel. 3. Brigade-Surgeon-Lieutenant-Colonel. 4. Surgeon-Major. 5. Surgeon-Captain. 6. Surgeon-Lieutenant. These ranks carry precedence and generally other advantages attaching to the rank indicated by the military portion of the title.

Pay and Allowances when in India.—Officers appointed to the Indian Medical Service will receive pay in India according to the following scale when not holding an appointment carrying higher pay:—

Rank.	Years' Service.	Pay and Allowances per Mensem.		
		R.	A.	P.
Brigade - Surgeon - Lieut.-Colonel and Surg. - Lieutenant-Colonel	25	888	12	0
Surgeon-Lieut.-Colonel	20	852	3	7
Surgeon-Major . .	15	677	6	11
„ . .	12	640	14	6
Surgeon-Captain . .	10	451	14	5*
„ . .	6	433	10	2*
„ . .	5	335	12	2*
Surgeon-Captain and Surg.-Lieutenant	under 5	317	8	0*

On first appointment they will only come into receipt of Indian pay and allowances from the date of their arrival in India.

The monthly salaries of officers holding the principal administrative appointments and substantive military charges of the Indian Medical Service receive, at present, the following consolidated salaries :—Surgeon-Major-General, Bengal, Rs. 2700; Madras, Rs. 2500; Bombay, Rs. 2500; Surgeon-General, from Rs. 2250 to Rs. 1800; Brigade-Surgeon-Lieutenant-Colonel or Surgeon-Lieutenant-Colonel, of twenty years' service and upwards, in substantive charge of a Native regiment, Rs. 1000, with Rs. 90 horse allowance in Cavalry regiments; Surgeon-Major, under twenty years' service, in substantive charge of a Native regiment, Rs. 800, with Rs. 90 horse allowance in Cavalry regiments; Surgeon-Captain, above five years' full-pay service, in substantive charge of a Native regiment, Rs. 600, with Rs. 60 horse allowance in Cavalry regiments; Surgeon-Captain or Surgeon-Lieutenant, under five years' full-pay service, in substantive charge of a Native regiment, Rs. 450, with Rs. 60 horse allowance in Cavalry regiments. The salaries of other substantive medical appointments in the Civil and Military Departments are consolidated, and vary from Rs. 1800 to Rs. 400 per mensem. Qualified officers of the Medical Service are also eligible for appointments in the Assay Department. The salaries of these appointments are from Rs. 600 to Rs. 2250 per mensem. Officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment.

Retiring Pensions and Half-Pay.—Officers of the Indian Medical Service will be allowed to retire on the following scale of pension, on completion of the required periods of service :—After thirty years' service for pension, £700; after twenty-five years' service for pension, £500; after twenty years' service for pension, £365; after seventeen years' service for pension, £292. Time of service for pension will reckon from date of first commission. A Surgeon-Major-General, after five years' active employment in India in that appointment, will be entitled to retire upon a pension of £350 per annum, in addition to that to which he may be entitled under the above scale. A Surgeon-Colonel will, after five years' active employment in India in that appointment, be entitled to retire upon a pension of £250 per annum, in addition to the pension to which he may be entitled under the above scale.

A Surgeon-Major-General or Surgeon-Colonel who has completed his term of service and has reverted to British pay, may reside in Europe, at the same time qualifying for higher pension.

With a view to maintain the efficiency of the service, all Officers of the rank of Brigade-Surgeon-Lieutenant-Colonel, Surgeon-Lieutenant-Colonel, and Surgeon-Major shall be placed on the Retired List when they shall have attained the age of fifty-five years, and all Surgeon-Major-Generals and

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* When not receiving any staff allowance.

Surgeon-Colonels when they shall have attained the age of sixty years. In any special case, where it would appear to be for the good of the service that the Officer should continue in employment, he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council.

Officers hereafter admitted to the Indian Medical Service will, after retirement on pension before completing thirty years' service, be liable to recall to military duty, in case of any great emergency arising, up to 55 years of age.

Wound Pensions.—Officers are entitled to the same allowances on account of wounds and injuries received in action as are granted to combatant Officers f Her Majesty's Indian Military Forces holding the corresponding military rank.

Family Pensions.—The widows and families of Officers are also entitled to pensions from the Indian Service Family Pension Fund, to which all Officers must, as a condition of their appointment, subscribe from the date of their arrival in India.

NAVY MEDICAL DEPARTMENT.

Admiralty, Northumberland Avenue, London, W.C.

REGULATIONS FOR ENTRY OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.

1. Every candidate for admission into the Medical Department of the Royal Navy must be not under 21 nor over 28 years of age on the day of the commencement of the competitive examination. He must produce an extract from the register of the date of his birth; or, in default, a declaration made before a magistrate, from one of his parents or other near relative, stating the date of birth. He must also produce a certificate of moral character up to date, and a recommendation signed by a clergyman or magistrate to whom he has been for some years personally known, or by the president or senior professor of the college at which he was educated.

2. He must be registered, under the Medical Act in force, as qualified to practise Medicine and Surgery in Great Britain and Ireland.

3. He must declare that he is a British subject, the son of parents of unmixed European blood; that he labours under no mental or constitutional disease or weakness, or any other imperfection or disability which may interfere with the most efficient discharge of the duties of a medical officer in any climate; and whether he holds or has held any commission or appointment in the public services.

He must also declare his readiness to engage for general service at home or abroad as required.

He must be free from organic or other disease, and his physical fitness will be determined by a board of medical officers, who are to certify that his vision comes up to the required standard, which will be ascertained by the use of Snellen's test types.

The certificates of registration, character, and birth must accompany the declaration, which is to be filled up and returned as soon as possible, addressed as above.

4. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—Anatomy and Physiology (1000 marks); Surgery (1000 marks); Medicine, including the Diseases of Women and Children (1000 marks); Chemistry and Materia Medica, and a practical knowledge of Drugs (1000 marks). (The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of Surgical Apparatus, and the examination of Medical and Surgical patients at the bedside. The examination in Chemistry will be limited to the elements of the Science, and to its application to Medicine, Pharmacy, and Practical Hygiene; and the examination in Materia Medica will include a knowledge of the physiological actions and therapeutical uses of Drugs.

No candidate shall be considered eligible who shall not have obtained at least *one-third* of the maximum marks in each of the above *compulsory subjects.*

5. Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be:—French and German (150 each), 300 marks; Biology, Physics, and Physical Geography (100 each), 300 marks. A number less than one-third of the marks obtainable in each of these *voluntary subjects* will not be allowed to count in favour of the candidate who has qualified in the *compulsory subjects.*

The knowledge of modern languages being considered of great importance, all intending competitors are urged to qualify in French and German.

The Natural Sciences will include Biology, Physics, and Physical Geography.

6. The appointments announced for competition will be filled up from the list of qualified candidates arranged in the order of merit as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

7. Successful candidates, immediately after passing the examination, will receive Commissions as Surgeons in the Royal Navy, and will undergo a course of practical instruction in Naval Hygiene, etc., at Haslar Hospital.

8. A fee of £1 will have to be paid by each candidate to entitle him to take part in the competition.

The full and half-pay per day of Naval Medical Officers is in accordance with the following scale:—FULL-PAY: Surgeon—On entry, 11s. 6d.; after 4 years' full-pay service, 13s. 6d.; after 8 ditto, 15s. 6d. Staff Surgeon—On promotion, £1, 1s.; after 4 years' full-pay service in rank, £1, 4s. Fleet Surgeon—On promotion, £1, 7s.; after 4 years' full-pay service in rank, £1, 10s.; after 8 ditto, £1, 13s. Deputy Inspector General, £2, 2s. Inspector General, £2, 15s. On first appointment to the service, medical officers will receive full pay from date of appointment, but subject to the provisions of Art. 1255, clause 2, of the Queen's Regulations, 1879. HALF-PAY: Surgeon—Under 2 years' full-pay service, 6s.; after 2 years' full-pay service, 7s.; after 4 ditto, 8s.; after 6 ditto, 9s.; after 8 ditto, 10s.; after 10 ditto, 11s.; Staff Surgeon—On promotion, 12s.; after two years' full-pay service in rank, 13s.; after 4 ditto, 14s.; after 6 ditto, 15s. Fleet Surgeon—On promotion, 17s.; after two years' full-pay service in rank, 18s.; after 4 ditto, 19s.; after 6 ditto, £1. Deputy Inspector General—On promotion, £1, 5s.; after 2 years' full-pay service in rank, £1, 7s.; after 4 ditto, £1, 9s. Inspector General, £1, 18s.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

TREATMENT OF CHOLERA.—Volovsky (*Vratch*, No. 31, 1892, p. 770) says the following method gave excellent results in his hands during a severe epidemic in 1872. Immediately after admission the patient is placed in a bath as hot as can be borne (not under 30° R.), and an icebag applied to his head. A few minutes later he is given a scruple of calomel and an ounce of castor oil, with some wine or brandy. In about half an hour, or as soon as he begins to complain of giddiness, he is taken out of the bath, put to bed, and rubbed dry, after which a large sinapism is applied to the whole abdomen, sides, and lower half of the chest, and kept on for fifteen or twenty minutes. Mild cases recovered most quickly, but even many of those admitted in the algid stage were discharged well in forty-eight hours.—A. D. Pavlovsky of Kieff (*Kïevskoïe Slovo*, August 4, 1892) suggests the following plan for eliminating the cholera bacilli and their toxins in the early stage: A purgative dose of calomel with naphthalin should be given at once, and half an hour later hot weak tea, with rum or brandy. If the patient's general strength and the action of the heart are still good, the subsequent treatment should consist in the administration of small doses of calomel with naphthalin and hot tea, with claret, brandy, etc. If cramps are complained of, hot packs and baths should be used, and the tinctures of valerian and convallaria given in doses of thirty drops hourly. If there be profuse diarrhœa and tendency to cardiac failure, hypodermic injections of a 0·7 per cent. solution of chloride of sodium with carbonate of soda must be resorted to as early as possible. Opium should be avoided.—A. G. Rosenoel (*Vratch*, No. 31, 1892, p. 770) has studied the action of the following substances on the cholera microbe in pure cultivation: Bisulphide of carbon, aniline water, iodine, carbolic acid, iodoform, resorcin, boracic acid, alum, salicylic acid, and thymol. He has come to the conclusion that,—(1), all these drugs except thymol kill the microbes only when used in very strong solutions; (2), in order to destroy the microbes in a cholera patient's intestines the drugs should be introduced in quantities which would poison the microbe as well; (3), thymol, however, kills the bacteria in five minutes, even when used in the proportion of 1 to 1000; (4), therefore, to disinfect the intestinal tract in a cholera case, it would be sufficient to inject into the patient's bowels not more than 4 grammes of thymol dissolved in 4000 grammes of water—a quantity which may be regarded as perfectly safe. Only five minutes' contact of the fluid with the intestinal contents and walls is necessary for all purposes.—V. A. Manasseïn says (*Vratch*, No. 32, 1892, p. 811) that he has received a telegram from I. I. Lvebonüdroff of Tionet, stating that salol as well as hydrochloric acid seem to act excellently well in cholera.—*British Medical Journal*, 10th September 1892.

SALOL IN DIARRHŒA.—Dr M. H. Fussell (in the *Therapeutic Gazette* for August 1892) says:—"It has been my practice in diarrhœa to administer salol in 5-grain doses, combined with 10 grains of bismuth and 2 drachms of chalk mixture. Children over one year of age are given 3-grain doses of salol. If the attack is severe, directions are given to take the same dose every hour until the diarrhœa is checked." He concludes as follows:—"(1.) Diarrhœa due to dietetic errors, and that which is common in adults and infants in summer, is well controlled by the administration of salol and bismuth or chalk. (2.) Opium is rarely necessary where salol is used. (3.) Salol controls the abdominal pain equally as well as opium. (4.) It is perfectly safe, having no bad after-effects. (5.) It is especially useful in the treatment of the diarrhœa of children. (6.) It is of no value in dysentery. (7.) It constantly corrects the fœtor of the stools.

Trional and Tetronal.—A. Ramoni (*Rif. Med.*, July 7, 1892) has tried trional and tetronal in fifty-one insane men in the Roman Lunatic Asylum, and in some female patients in the S. Giovanni Hospital. The following are his conclusions:—(1.) The two new hypnotics are superior to sulphonal and chloral. (2.) The patient awakes more easily, and there are no unpleasant after-effects, such as nausea, vomiting, loss of appetite, etc. (3.) The action of the drugs is rapid (thirty to sixty minutes). (4.) Trional is superior to tetronal, the sleep induced by the former being sounder and more lasting. (5.) The sleep (after either of the drugs) lasts on the average six to eight hours, and is not disturbed by dreams.—*British Medical Journal*, 27th August 1892.

Cerebral Action of some Medicaments.—Krœpelin (*Rif. Med.*, 11th July 1892) says that a given drug has a different action on sensory and motor functions. Thus—(1.) Alcohol in small doses impairs the sensory functions and excites the motor ones; in large doses it first aids the motor processes, then abolishes them. (2.) Paraldehyde causes difficulty of the sensory functions and aids the motor processes, then rapid paralysis of these last. (3.) Chloral impairs both sensory and motor functions. (4.) Ether rapidly paralyses sensory processes and excites motor; in large doses it increases the sensory paralysis, and eventually abolishes motion. (5.) Chloroform has a similar but more rapid action. (6.) Amyl nitrite causes excitement of the motor functions, slight paresis of the sensory processes. (7.) Tea greatly facilitates sensory processes, after a time depressing them, but has little effect on the motor functions. (8.) Morphine causes at first enormous excitation of sensory functions, but subsequent rapid depression; it causes marked and persistent paralysis of motor functions. — *British Medical Journal*, 27th August 1892.

SURGICAL PERISCOPE.

By Kenneth M. Douglas, M.D., F.R.C.S. Edin.

On the Extirpation of Aneurisms.—Dr Kübler (Tübingen) contributes a valuable paper on this subject, with three illustrative cases in which Prof. Bruns practised the operation, and a *résumé* of 37 cases published by various surgeons. Of the 40 cases collected by Dr Kübler, 28 are arterial and 12 arterio-venous aneurisms; 11 are of spontaneous origin; 29 resulted from traumatism. As to the site of the tumour, 5 are of the femoral, 9 popliteal, 8 brachial, 4 ulnar, and the rest of other vessels. As the result of treatment by extirpation, cure was obtained in 39 cases; only in 2 was there any considerable suppuration. In no instance was there any threatening of hæmorrhage after the operation, and as regards the risk of gangrene of the limb, Kübler notes that in nearly all the cases the rapid restoration of the circulation was most marked, this point being of peculiar interest in a case reported by Wahl, where, after extirpation of a femoral arterio-venous aneurism, the *pre-existing* œdema of the leg rapidly disappeared, and large ulcers very soon healed. Kübler combats the notion that injury to the vein during the operation necessarily increases the risk of gangrene. Of 21 cases in which the vein was interfered with either by ligature or resection, only 1 suffered from gangrene, and that only to a limited extent. This patient was the only one of the 40 to suffer in this way. Kübler places the death-rate in these cases at 2 per cent., while Delbet, in 1882, placed it at 11 per cent., as compared with 18·75 per cent. after ligature. He concludes that a patient treated by this method is saved from a series of dangers which are associated with the operation of ligature for aneurism: from the inflammation and suppuration of the sac, so frequent after ligature; from the possible contingency of rupture of the sac and hæmorrhage, following on these inflammatory changes. The nerve disturbances —trophic, sensory, and motor—improve after the radical treatment if extirpation has been adopted, while after ligature they are occasionally made worse. As regards the curative value of the methods, Kübler insists that with all its concomitant dangers ligature affords the least guarantee for permanent cure; the operation of Antyllus is more favourable, but healing is apt to be delayed by suppuration of the sac; extirpation, he is assured, affords the best results as regards healing and cure; it is certainly a more difficult procedure to carry out, but yet should be preferred in all "peripheral" aneurisms in which the question of operative treatment is to be considered.—*Beitrage z. Klin. Chirurg.*, ix. Band, 1 Heft.

HÆMORRHAGE IN THE COURSE OF HIP-DISEASE—LIGATURE OF EXTERNAL ILIAC.—Mr Geo. Heaton reports the case of a boy, aged 13, suffering from hip-disease of some months' duration, in which this complication supervened. Excision had been performed seven months previously with comparative success—sinuses, however, persisting. "Tuberculin" was injected regularly during two months, without producing any local benefit. Secondary abscesses formed, leaving new sinuses. One morning blood was found to be oozing from a sinus to the inner side of the femoral vessels, the patient having previously been straining at stool. The dressings were saturated with blood, the tube had been pushed out, and blood welled freely from the sinus. The patient complained of much pain in the limb, and was extremely pallid. The sinuses were examined under chloroform, the external iliac being meantime compressed: all the suppurating tracks were distended with blood-clots; the femoral vessels were found to traverse the wall of the inner sinus, forming its roof. The exact point whence the blood came could not be discovered, and it was decided to ligature the external iliac as the patient's state was critical. Abernethy's method was followed. Next day the swelling and œdema of the limb had diminished, the granulating surfaces were pale, and did not bleed on being rubbed; two days later they were more vascular, and bled when rubbed; there was still no pulse in the tibials. The ligature wound healed, and the boy was discharged from Hospital; but one month later was readmitted in such a state that amputation at the hip was resolved on. The operation was done by Mr Furneaux Jordan's method, and the enlarged collateral vessels gave some trouble. The patient rallied somewhat, but suddenly "fainted" and died six hours after. At the post-mortem the external iliac was found to be filled by a firm clot from its origin to the deep epigastric. The bleeding was found to have taken place from an ulcerated opening into the internal circumflex artery, which was sealed by firm, adherent clot. Mr Heaton remarks that the sinus was close to the inner side of the femoral vessel, and that the ulceration into the wound was probably produced by the small drainage-tube which lay in the sinus. He remarks further, that it is of interest to note that notwithstanding the anæmic and weakly state of the patient and the previous œdema of the limb, gangrene never threatened, but, on the contrary, the œdema disappeared for a time.—*Birmingham Medical Review*, June 1892.

COMPOUND DISLOCATION OF THE ANKLE.—Dr Scudder (Harvard Univ.) having examined the records of cases reported in the literature since 1878, found a total of thirty-eight cases in which the end-result is known. Twenty-two were reduced without operation. In eight the astragalus was removed. In six a partial excision was done. In two a complete excision was done. The end-results in these cases were, as to usefulness of the foot, excellent. As to the mortality, one case died of sepsis, aged 64, in 1883; one case in 1877 came to amputation. The age of the oldest was 64 years; of the youngest, 15 years. Only those cases were taken for study in which the end-results were known. Dr Scudder's paper contains the report of a case of the injury; he concludes that extreme conservatism should characterize the treatment. Dr Abner Post (Boston) also reports two cases successfully treated—one by partial removal of the fractured astragalus, the other by replacement of the bones and removal of small fragments, of which there were many. In the latter case the articular end of the tibia projected through a wound over the outer malleolus, and both malleoli were broken off. —*Boston Med. Journal*, April 7, 1892.

RESECTION OF POSTERIOR BRANCHES OF FIRST THREE CERVICAL NERVES FOR SPASMODIC WRY-NECK.—Dr Chas. Powers reports this case. The patient was a muscular man of 37 years; he had from boyhood been excessively nervous, as his father had also been; the spasmodic condition had begun two years previously, and had increased gradually in degree. It was, after examination, believed that the posterior rotators were the muscles affected, and resection of the nerves supplying these was therefore recommended. The procedure adopted was in the main that advised by Mr Keen, ½ to ¾ of an inch being excised from each nerve after they had been followed well back to the spine. A transverse skin incision was adopted, the patient being placed upon his face. The operation occupied two hours, and on recovery from anæsthesia, the spasms had ceased; they returned in slight degree ten days later, when all dressings had been removed, but did not persist. Owing to the directions as to massage, etc., being neglected, the head assumed gradually a position of contraction, with the face drawn to the right. The operation was done in February 1891, and in March 1892 the deformity from contraction had largely passed away, all movements were quite free, there had been no return of spasm, and the patient was able to attend to his daily work. This operation is the third of the kind recorded. Mr Keen's case showed amelioration; the case now reported showed cessation of spasm, with a persistent tonic wry-neck; in a case reported by Mr Noble Smith (*Brit. Med. Journal*, 1891, i. p. 752) the cure seems to have been complete. Dr Powers thinks that the last-named surgeon must have been careful in resecting the fourth nerve, and in cutting out all fibres to complexus and splenius, and would in another case be inclined to follow this procedure.—*New York Med. Journal*, March 5, 1892.

Resection of the Liver for Tumour.—This operation is reported by Mr Keen. The patient was a woman, aged 31, who sought relief on account of pain and excessive discomfort. The diagnosis was made of "probably floating and diseased right kidney;" but on operating, and drawing the tumour out of the abdomen, it was found to be connected with the liver, involving its extreme right border. The tumour apparently being non-malignant, its removal was determined on. At first the attempt was made to ligate the thick border of attachment, and divide the pedicle, if it could be properly called such, by the cautery. The growth was found, however, to extend as a wedge into the liver, and this idea as to the mode of its removal was abandoned; it was, however, found to be possible to strip the liver substances from the tumour with the thumb-nail without serious hæmorrhage, certain points of attachment posteriorly requiring touching with the thermo-cautery. The liver "stump" resembled that of an amputation roughly, and the edges were approximated with five deep sutures. The amount of blood lost was estimated at 6–8 oz. The peritoneal cavity was flushed with hot water, a glass drainage-tube was inserted, and the wound closed, the operation lasting one hour. Recovery was uninterrupted, excepting for a malarial attack, and after forty-two days the patient went home quite well. The tumour proved to be a rare form of cystic growth, evidently originating from the bile-ducts, and most probably from the vasa aberrantia found on the edge of the liver. To the paper is appended a table of twenty reported cases of removal of liver tumours.—*Boston Med. and Surg. Journal*, April 28, 1892.

INTESTINAL SUTURE BY A NEW METHOD.—Kummer has been experimenting upon dogs with a new method of intestinal suture. This method consists in dissecting back a sleeve-like circular flap of the serous and muscular coats all around the bowel, for about one and one-half centimetres (half an inch), cutting off the projecting mucous and submucous coats at this level, sewing the edge of the latter to the corresponding layers of the other loop prepared in the same way, then doubling in the two redundant flaps or sleeves of serous and muscular tissue so that their serous surfaces are brought broadly in contact, and securing the latter with one or more series of Lembert-Czerny sutures. In this way serous apposition is obtained without rolling in the entire thickness of the edge of the bowel as in the ordinary method, and the projection of the inverted edges into the intestinal lumen and consequent danger of obstruction is avoided, for when the sero-muscular flaps are folded up against each other they stand outside around the line of suture like a ruff, instead of projecting inside of the bowel like a diaphragm.—*Archiv f. klin. Chirurgie*, xlii. 534.

RUPTURE OF KIDNEY; TRAUMATIC NEPHRITIS; CURE.—Dr Alapy (Buda-Pesth) reports this case. The patient, aged 59, presented the usual symptoms of rupture of the kidney; three hours after the accident there was profuse hæmaturia. On the second day there was anuria, on the third day oligurea and symptoms of peritoneal inflammation, which, however, did not last. All apparently went well, and on the fourteenth day the patient was allowed to walk about his room; the urine was copious in amount. Suddenly there appeared albumen in the urine, and the microscope showed blood corpuscles (hæmaturia having previously ceased on the tenth day), leucocytes, and abundant uric acid crystals. On the sixteenth day hyaline casts were found, sometimes coated with a few epithelial cells. Dropsy of the limbs supervened on the eighteenth day, disappearing again, however, in twenty-four hours, its disappearance coinciding with a well-marked diuresis. The albuminuria diminished, but on the twenty-fifth day the eyelids and cheeks became dropsical for a few days. At the end of three months the urine was normal, save for a trace of albumen and phosphatin deposit; after a year no albumen was to be detected. Dr Alapy regards as of especial interest in the case these two points—first, that one had to do with a tubular nephritis of traumatic origin and strikingly benign in character; second, that the signs of the nephritis were manifest in the urine eight days before the appearance of the dropsy.—*Ann. des Malad. des Organes Genito-Urinaires*, July 1892.

Part Fifth.

MEDICAL NEWS.

Chair of Surgery, Glasgow University.—The vacancy in the Medical Faculty of the University of Glasgow, caused by the lamented death of Sir George H. B. Macleod, has been filled up by the appointment of Dr William Macewen, Professor of Clinical Surgery, St Mungo's College.

New Work on the Fœtus.—We have much pleasure in announcing that Messrs Oliver & Boyd have in the press the first volume of a large work, by Dr J. W. Ballantyne, entitled *Diseases and Deformities of the Fœtus; an Attempt towards a System of Ante-natal Pathology.*

Messrs Burroughs, Wellcome, & Co.—This famous London Drug Firm were awarded a Medal by the Judges of the recent Sanitary Congress at Portsmouth for Medicine Chests, as well as a Certificate for their Kepler Malt Extract.

OBITUARY.

SIR GEORGE H. B. MACLEOD.

It is with a feeling of pain and regret that we record the death, after an illness of only three days, of Sir George Husband Baird Macleod, Regius Professor of Surgery in the University of Glasgow. Though the death was sudden, and came as a surprise and shock to the profession as well as to the community at large, it was suspected for a considerable time by those of his professional brethren who had the privilege and pleasure of associating with him on terms of the closest intimacy, that he was affected by an organic disease of the heart. Be that as it may, he continued to discharge his duties with his wonted zeal and energy till the 28th of August, when he was seized with angina pectoris, which, notwithstanding the relief afforded by the means employed, ended fatally on the morning of the 31st.

Sir George was born at Campsie in 1828, and belonged to a remarkable family, being the son of the Rev. Dr Norman Macleod, of St Columba Parish, Glasgow, and brother of the late Dr Norman Macleod of the Barony Parish, and also of the Rev. Dr Donald Macleod, the present incumbent of the Park Church, Glasgow. The family was of Celtic extraction, a fact which accounted for the kindly regard and warm attachment which Sir George invariably manifested towards the Highlanders. After completing his school education, he entered as a student in Arts in the University of Glasgow, where he obtained considerable distinction in the department of Philosophy. At this stage of his career his health gave way, but after a winter's sojourn in Italy, he returned with renewed strength and began the study of Medicine. At this time the Medical School of the University, which for some years previously had been in rather a languid condition, was emerging from its lethargy under the vivifying influence of the late Prof. Allen Thomson, who had been transferred, two years previously, from the Chair of Physiology in the University of Edinburgh, and also of the late Prof. Lawrie, who had a short time previously been appointed to the Chair of Surgery. Inspired by them, he showed a strong predilection for Anatomy and Surgery, and was zealous equally in the dissecting-room and the wards of the Royal Infirmary, in which, though he never held the post of House-Surgeon or House-Physician, he occasionally acted in the absence of these officials. He graduated as M.D. in 1853, and thereafter proceeded to Paris, where he devoted himself to Operative Surgery and to the study of Surgical Anatomy and Pathology, attending at the same time the cliniques of such men as Velpeau, Nelaton, Chassaignac, and Roux, of whose practice and instruction he afterwards always spoke in terms of the warmest admiration. On his return to Scotland he was induced to accompany a gentleman on a yachting cruise in the Mediterranean, and on coming back (the Crimean war having broken out about this time) he was engaged to go to the East to bring home a distinguished officer who had been severely wounded. On arriving with his charge in London, he met in consultation Sir William Fergusson, by whom he was introduced to Sir James Clark, who was then interesting himself in the institution of civil hospitals for the sick and wounded of the British forces in the Crimea. Through the instrumentality of Sir James he was appointed Surgeon to the Hospital at Smyrna. It being found, however, some time after his arrival there, that the wounded were operated on chiefly in the field, he volunteered to the front. Soon afterwards the war was brought to a close. Sir George then returned to Glasgow, and embodied his observations in a book on the *Surgical History of the Crimean War*, which was favourably noticed at the time. As circumstances required it, he then engaged in general practice; but having the ambition ultimately to devote himself entirely to Surgery, he took rooms in Cathedral Street, where he advertised to lecture on Systematic Surgery. Having no hospital connexion, and finding that the appointments to office and the mode of clinical instruction were not in conformity with the best experience of the day, he agitated by pamphlet and otherwise for certain reforms. Though some of his recommendations were not such as he himself in after years would have approved of, the controversy in the end did good. Like most early reformers, however, he suffered for what was by some considered to be presumptuous intermeddling, by being kept from office in the Infirmary for several years.

At last his opportunity came. Appointed as one of the Surgeons of the Royal Infirmary, he applied himself with remarkable success to clinical work, and was not long in obtaining a large following as a teacher. So highly was he thought of in this regard, that Professor Lawrie, who was then in declining health, appointed him to conduct his class during his illness; and so well did he acquit himself on that occasion, that the students at the end of the session presented him with a handsome testimonial. In 1860 Professor Lawrie was succeeded by Sir Joseph, then Mr Lister. Up to this time the men occupied in the teaching of Surgery in Glasgow were at the same time engaged in general practice, only one of Sir George's compeers, who afterwards became his colleague in the University, having aimed at devoting himself to surgical work alone. From the large population in the City and West of Scotland it was evident that there was room, and, indeed, a necessity, for more than one pure surgeon. Sir George, accordingly, having in the meantime succeeded Dr Robert Hunter in the Chair of Surgery in Anderson's University, and in accordance with his original determination, gradually dropped certain departments of general practice and applied himself with increased diligence to what was to be the main work of his life. This connexion with the Andersonian University proved to him of incalculable value, for when in 1869, on the removal of Sir Joseph Lister to Edinburgh, he was appointed to the Chair of Surgery in the University, he entered on his duties with a mind fully matured for teaching, and with an amount of practical experience which rendered him eminently efficient and trustworthy, both in the classroom and at the bedside. Having now attained the object of his ambition, he dropped general practice altogether, with the result that his services were more and more sought after as a consultant and operator. But though his success in this respect was great, and might have been enough to satisfy most men, the work which he delighted in chiefly was that connected with his classes in the University and the Western Infirmary. In both of these institutions he had a large following of students. In the University more particularly they flocked to him in such numbers as to make it difficult to find accommodation for them in the classroom. But large as their numbers were, he knew them all individually and had them thoroughly under command. His interest in them was unceasing, and his main desire was that nothing should be wanting on his part to enable them not only to pass their final examinations with credit, but to become efficient practitioners in whatever sphere of energy they might be placed. With that object in view he considered no systematic course adequate which did not embrace or was not supplemented by a course of instruction in Operative Surgery. He therefore instituted classes for this purpose, and in these as a teacher he was as successful as in the systematic course. Nor was he less successful in his hospital work. As an operator he was composed and elegant in all his movements, and from his tall figure and stretch of arm was able to place himself in such a position as to enable the students to see with facility the successive stages of the operations. In the after-treatment of his cases he showed unremitting and anxious care and attention, and his manner with the patients was so kindly, encouraging, and sincere, as to inspire them with the belief that their recovery was certain. Nor in the midst of labours so engrossing was he unmindful of the claims of medical literature. Mention has been made already of his notes on the *Surgery of the Crimean War*. Besides an excellent treatise on the *Outlines of Surgical Diagnosis*, which is unfortunately now out of print, he contributed many articles to Cooper's *Surgical Dictionary* and the *American National Encyclopædia of Surgery*, as well as numerous papers to the leading medical periodicals of this country.

With such a record it is not to be wondered at that in addition to the higher qualifications obtained in the early part of his career, such as the F.R.C.S.E. and the F.F.P.S. Glasgow, he was admitted to the Fellowship of the Royal Society of Edinburgh, and had conferred upon him the honorary Fellowship of the Royal College of Surgeons of Ireland, and as late as last spring the degree of LL.D. of the University of St Andrews. He was, besides, a corresponding member of the Société de Chirurgie de Paris and of the Académie de Médecine de Paris, member of the Deutsche Gesellschaft für Chirurgie, and member of several other learned societies. On the removal of Sir Joseph Lister to London he had the honour of being appointed Surgeon in Ordinary to the Queen for Scotland, and in the year of Her Majesty's Jubilee received the honour of knighthood. He was, moreover, one of the Crown representatives in the General Medical Council, having been appointed in the room of the late Dr Fergus, on the expiry of whose term of office he was but lately again appointed for a further term.

So much for Sir George as a Surgeon. As a man he was most lovable. Possessed of a stately but gentle courtesy, he had the rare faculty of attracting and winning the admiration of young and of old alike. His consideration for others was marked by a toleration of difference of opinion which made intercourse with him exceedingly pleasant. He loved to keep up old college friendships, and nothing gave him more delight than to receive and to entertain at his beautiful villa of Fiunary, on the shores of the Gareloch, old fellow-students and those who had been associated with him in early days. He was the soul of honour itself. He detested the bitterness of controversy, and always tried to inspire his students with a high ideal of their calling and a horror of everything that was mean and base. It is within the knowledge of the writer of these lines that by his courtesy, kindness, and tact he was the means of saving not a few students who were making shipwreck of their lives and opportunities. To further their progress and hear of their success was to him more than a reward. Hence his popularity in the College, where on state occasions his handsome figure, set off with the trencher cap, hood, and gown, invariably commanded the admiration of students and of strangers alike. On all accounts his loss to the University and its medical school is great. His place may no doubt be filled by as accomplished a surgeon, but it may not be so easy to find one of such high excellence as a teacher.

PUBLICATIONS RECEIVED.

Annual Report of the Sanitary Commissioner with the Government of India. Calcutta, 1892.

J. T. Arlidge, M.D., A.B.,—The Hygiene, Diseases, and Mortality of Occupations. Percival & Co., London, 1892.

Army Medical Department Report for 1890.

Joseph Bell, M.D., etc.,—A Manual of the Operations of Surgery. Oliver & Boyd, Edin., 1892.

Dr Elizabeth Blackwell,—Why Hygienic Congresses fail. Geo. Bell & Sons, Lond., 1892.

Bulletin of the Harvard Medical School Association, Number 3. Report of the Second Annual Meeting held in Boston, June 28, 1892. Published by the Association.

D. W. Buxton, M.D., etc.,—Anæsthetics, their Uses and Administration. H. K. Lewis, Lond., 1892.

Catechism Series—Materia Medica, Part III. E. & S. Livingstone, Edin., 1892.

Joseph Darby,—Day Visions and Clairvoyant Night Dreams, etc. Simpkin, Marshall, Hamilton, Kent, & Co., Lim., Lond., 1892.

James Donelan, M.B., etc.,—Aix-la-Chapelle as a Health Resort. J. & A. Churchill, Lond., 1892.

Dr Stretch Dowse,—A Primer of the Art of Massage. John Wright & Co., Bristol, 1892.

E. J. Edwardes, M.D.,—Vaccination and Small-Pox in England and Other Countries. J. & A. Churchill, Lond., 1892.

Wm. Ewart, M.D.,—Cardiac Outlines for Clinical Clerks and Practitioners. Baillière, Tindall, & Cox, Lond., 1892.

J. K. Fowler, M.D., etc.,—Arrested Pulmonary Tuberculosis. J. & A. Churchill, Lond., 1892.

Guy's Hospital Reports, Vol. 48. J. & A. Churchill, Lond., 1892.

W. S. Hedley, M.D.,—The Hydro-Electric Methods in Medicine. H. K. Lewis, Lond., 1892.

Barton C. Hirst, M.D., and George A. Piersol, M.D.,—Human Monstrosities. Lea Brothers & Co., Philadelphia, 1892.

Richard D. Hoblyn, M.A.,—A Dictionary of Terms used in Medicine. Whittaker & Co., Lond., 1892.

Victor Horsley, B.S., F.R.C.S., etc.,—The Structure and Functions of the Brain and Spinal Cord. Chas. Griffin & Co., Lond., 1892.

Frederic Bowreman Jesset, F.R.C.S. Eng.,—Cancer of the Mouth, Tongue, and Œsophagus. Baillière, Tindall, & Cox, Lond., 1892.

F. B. Jesset, F.R.C.S.,—The Surgical Diseases and Injuries of the Stomach and Intestines. Baillière, Tindall, & Cox, London, 1892.

Surgeon Lieut.-Col. E. Lawrie, M.B.,—Annual Report of the Civil Medical Department of H. M. the Nizam's Government for Fasli 1300.

Wm. Martindale, F.C.S., etc.,—The Extra Pharmacopœia. H. K. Lewis, Lond., 1892.

C. W. Mansell Moullin, M.D.,—Operative Treatment of Enlargement of the Prostate. John Bale & Sons, Lond., 1892.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Young J. Pentland, Edin. and Lond.

William Rose, M.B., B.S. Lond., etc.,—The Surgical Treatment of Neuralgia of the Fifth Nerve. Baillière, Tindall, & Cox, Lond., 1892.

Saint Thomas's Hospital Reports, Vol. 20. J. & A. Churchill, Lond., 1892.

Fred. A. A. Smith, M.D., etc.,—Keep your Mouth Shut. Baillière, Tindall, & Cox, Lond., 1892.

Thos. Stevenson, M.D., and Shirley F. Murphy,—A Treatise on Hygiene and Public Health, Vol. 1. J. & A. Churchill, London, 1892.

J. A. Thomson, M.A.,—The Study of Animal Life. John Murray, London, 1892.

John Thomson, M.D.,—Congenital Obliteration of the Bile Ducts. Oliver & Boyd, Edinburgh, 1892.

Transactions of the American Laryngological Association. The Thirteenth Annual Meeting. D. Appleton & Co., New York.

Transactions of the American Pediatric Society, Vol. 3. Washington, 1892.

D. Hack Tuke, M.D., etc.,—A Dictionary of Psychological Medicine, 2 Vols. J. & A. Churchill, Lond., 1892.

J. C. Webster, M.D., etc.,—Puberty and the Change of Life. E. & S. Livingstone, Edin., 1892.

Frank J. Wethered, M.D.,—Medical Microscopy. H. K. Lewis, Lond., 1892.

Dr Ch. Willems,—De la Périnéotomie et de ses applications. Voe Babé et Cie, Paris, 1892.

Joseph Wright,—Laird Nicoll's Kitchen and other Scottish Stories. Joseph Wright, Glasgow.

Part First.

ORIGINAL COMMUNICATIONS.

I.—THE ERYTHEMATA.

By T. M'Call Anderson, M.D., Professor of Clinical Medicine in the University of Glasgow.

(*Continued from p.* 305.)

(*g.*) *Erythema multiforme* (including erythema papulatum, tuberculatum, annulare, gyratum, marginatum, and iris; also herpes iris, and one form of herpes circinatus).

This eruption is a constitutional, and therefore a symmetrical one: it has a special tendency to attack the backs of the hands, fingers, and forearms, and is often limited to these parts, but frequently the dorsum of the foot and front of the leg are also invaded: in more severe cases the thighs and upper arms, and even the trunk and face are implicated. But, wherever else it may appear, the first-named localities are pretty sure to suffer.

The eruption, as its name implies, is remarkable for the variety of forms which it may assume. It commences as erythematous blotches, or as papules (erythema papulatum), or tubercles (erythema tuberculatum) varying in size from a lentil to a bean. At first they may be rosy red, but soon they become violaceous or livid in tint, and for the first day or two the surrounding skin may be congested and reddened. In slight cases this is all that is observed, and the eruption may disappear within a week, leaving a little transitory pigmentary staining.

But, in typical cases, the papules or tubercles begin to flatten out, and to spread circumferentially, while healing in the centre, so that rings of eruption are left enclosing slightly pigmented skin (erythema annulare). Sometimes a new ring develops around the first, or a new papule forms in the centre of the ring, constituting the so-called erythema iris. Occasionally the rings are the seat of vesicles, constituting one variety of herpes circinatus, or herpes iris, and now and then bullæ make their appearance (erythema bullosum). If the erythematous rings continue to increase, neighbouring ones coalesce, and thus wavy lines, composed of segments of circles of the original rings, are left (erythema gyratum—erythema marginatum). Sooner or later these wavy lines, getting thinner and thinner, disappear, leaving for a time some pigmentary staining which marks the seat of the previous eruption.

It will thus be seen that the first stage of the disease is erythema papulatum or tuberculatum, and the last, erythema gyratum or marginatum; and the name given to the disease is apt to depend upon the stage at which it is seen. But, as was first pointed out by Hebra, it is incorrect to speak of these varieties of form as if they were separate diseases, seeing that they are but stages of one affection, to which he very appropriately gave the name of erythema multiforme. In some cases the mucous membranes, especially the bucco-pharyngeal mucous membrane, are implicated, being the seat of red patches, the epithelium covering which becomes grayish and detached, leaving painful and abraided surfaces.

When the eruption comes out rapidly and extensively there may be slight fever at the outset, and even transitory pains in the joints, which are supposed by many to indicate an alliance with the rheumatic diathesis, although such a connexion is not so obvious as in erythema nodosum about to be described. The eruption is not the seat of much discomfort, though slight burning and a feeling of tension may be present in the acute stage, and slight itching, with transitory desquamation, in the chronic. Occasionally the eruption is complicated with œdema, especially at parts where there is much loose cellular tissue, and exceptionally there is actual hæmorrhage into the substance of the skin. The duration of the affection is usually from one to four weeks, but it may be much prolonged owing to the occurrence of successive crops of eruption.

It is generally met with in young adults, in males more frequently than in females, and it has a great tendency to appear in spring and autumn, especially during the months of March, April, May, October, and November. It is a recurrent affection, and is very apt to reappear during the same month each year. Although there is some doubt as to its connexion with the rheumatic diathesis, it is quite certain that functional derangement of internal organs, and especially disorder of the digestion, has a good deal to do with its appearance. We have, further, the authority of Hebra for stating that during cholera epidemics at Vienna, about 1 per cent. of the patients, as convalescence approached, were attacked with erythema multiforme—the eruption, however, generally remaining limited to the first stage, that of erythema papulatum. This is the so-called roseola cholerica.

If the salient features of erythema multiforme are kept in view, it is hardly possible to mistake it for any other affection.

(*h.*) *Erythema nodosum* (Dermatitis contusiformis).—This eruption has a special tendency to attack the front of the legs, and, next to this, the arms, although it may be seated upon any part. It appears in the shape of oval or rounded tumours, varying in size from that of a pea to a hen's egg, whose long diameters are generally parallel to the axis of the limb. They are not much elevated, and feel as if deeply seated. At first they are firm to the touch, painful upon pressure, and of a rosy tint, the colour disappearing upon pressure; in a later stage they are soft and less sensitive, redness gives place to lividity, and, finally, a yellow tinge is imparted to them, which does not disappear on pressure. Occasionally, when the inflammatory action runs high, the tumours become hæmorrhagic. The number of tumours varies a good deal, but generally not more than ten or twelve appear on one limb at a time. The duration of the eruption is usually from two to four weeks, but it may be kept up indefinitely owing to the occurrence of successive crops; and, in that case, the new swellings never occupy the sites of the old ones. It is specially apt to occur in young persons under 30 years of age, and females are more liable to be attacked than males. The disease sets in with febrile symptoms, often accompanied by pains in the joints, which recur with each successive crop, and sometimes it makes its appearance during the course of rheumatic fever, which seems to imply a close connexion with the rheumatic diathesis. Like erythema multiforme, the eruption has a tendency to appear in spring and autumn, and it may be an annual visitor.

Hebra was of opinion that, in some cases, the disease is connected with inflammation of the lymphatics, seeing that the little tumours are arranged along their course, thus exhibiting appearances similar to those of angioleucitis. But in the latter the tumours tend to terminate in suppuration, while those of erythema nodosum never do, although Hardy states that, in scrofulous patients, he has seen the tumours on the legs degenerate into rounded ulcers with perpendicular edges and unhealthy bases, like syphilitic sores. Hebra's hypothesis, moreover, has never been verified by post-mortem examination, so that his view must be taken with a reservation. Bohn, on the other hand, is of opinion that embolism of some of the bloodvessels of the skin is at the root of the mischief,—the little tumours, in fact, constituting inflammatory infarctions. The only diseases likely to be mistaken for erythema nodosum are urticaria nodosa and angioleucitis.

Erythema nodosum.	*Urticaria nodosa.*
1. Pains in joints common, and occasionally associated with rheumatic fever.	1. No joint affection.
2. Seats of predilection—the legs, and, next to this, the arms.	2. No special seat of predilection.
3. Colour first red, then violet, finally yellow.	3. Colour red throughout, but centres of patches pale.
4. Eruption painful, or at least tender on pressure in the advancing stage.	4. Eruption very itchy, and never painful unless as the result of scratching.
5. Duration of each crop of eruptions, seven to ten days.	5. Duration, two or three days.

Erythema nodosum.	*Angioleucitis.*
1. Eruption symmetrical.	1. Unsymmetrical, only one limb being involved.
2. Often associated with rheumatic pains, and even sometimes with rheumatic fever.	2. Usually the result of a wound, abrasion, or the like.
3. No appearance of any connexion between the individual tumours.	3. A red line, connecting the swellings, runs up the limb, sometimes having a cord-like feeling.
4. Suppuration rarely, if ever.	4. Suppuration usual.

(*k.*) *Erythema læve* is the term applied to cases in which dropsy precedes and induces erythema, owing to the lowered vitality usually accompanying such a condition, and to the stagnation of the circulation. It is most frequently encountered upon the legs below the knees, because they are most commonly the seats of dropsy, and on account of their dependent position. It is not unusual for the erythema to pass on to eczema, and in some instances mortification sets in. But, while dropsy may give rise to erythema, erythema, on the other hand, may cause œdema, if the inflammatory action is high, especially if there is much loose cellular tissue at the part affected,—a condition which is sometimes spoken of as E. œdematosum.

(*l.*) *Erythema paratrimma* (incipient bed-sore).—This constitutes the first stage of bed-sores, and arises, as is well known, from the pressure to which certain parts—as the sacrum and trochanters—are subjected from long confinement to bed. It is further favoured by the lowered vitality of the system, associated with chronic and exhausting diseases, and, above all, by inflammation of the spinal cord, whereby the affected parts are in great measure cut off from the trophic influence of the nerve centres. It is very apt, if neglected, to terminate in gangrene. The characters of E. paratrimma do not differ from those of E. simplex, but, owing to its situation and the conditions under which it arises, there should be no difficulty as to the diagnosis.

(*m.*) *Erythema pernio* (Chilblain).—This form of erythema should be kept apart from that due to genuine frost-bite (congelatio), although they are closely allied pathologically. It is oftenest met with in anæmic persons, and in the subjects of the lymphatic temperament, and in children and old people, rather than in healthy, vigorous adults. It is specially apt to occur in cold weather, and at parts far removed from the influence of the heart (fingers, toes, ears, nose, and cheeks), owing to the circulation at these parts being languid. At the very outset the capillary bloodvessels are in a state of contraction, and the affected parts are pale and numb. But this is soon followed by paralysis of the vaso-motor nerves, with consequent dilatation of the capillaries, and the parts become painful, swelled, and dusky red or livid. As the acuteness of the inflammatory action subsides, there is more or less itching and desquamation. In bad cases, and when neglected, the erythema may pass on to vesication and ulceration, or even to gangrene, although this is exceptional.

Chilblain affecting the nose and cheeks may be mistaken for *acne rosacea*, but the latter is not met with on any other part than the face; it is most apt to occur in middle life; there is a varicose condition of the small vessels of the skin preceding and accompanying the inflammation; the surface is not so livid, and it is, as a rule, less shiny and swollen.

Chilblain affecting the hands may readily be mistaken for *lupus erythematodes* of these parts—indeed, the two conditions are closely allied. But I have rarely, if ever, seen the latter on the hands, and on no other part. Generally the eruption will be found also in its accustomed sites, viz., nose, cheeks, lobes of ears, and head, when the typical characters of lupus erythematodes are usually to be distinguished. Not unfrequently, too, lupus erythematodes is accompanied by other manifestations of the strumous diathesis.

Treatment.—With regard to *erythema simplex* and its varieties, it must be remembered that it is closely allied to eczema, and is indeed a veritable eczema arrested in its first stage. Its parentage is the same, and its treatment must therefore be conducted on the same principle as we would treat eczema itself. But, as erythema represents a lower grade of inflammatory action, it is obvious that, as a rule, only the simpler and milder measures applicable to eczema are required for its eradication.

It may be remarked, however, that in *erythema capitis* the best results are often obtained, in addition to constitutional measures, from the application of a lotion of liquor carbonis detergens (℥j. in ℥vj. of distilled water), followed by an ointment containing ʒss. to ʒj. of sulphur to the ounce, or from one composed of—

℞ Lanolini anhydrici,
Cerati Galeni, āā ℥ss.
Resorcin,
Ichthyol,
Acidi salicylici, āā 3 %.
M.

In the treatment of *erythema faciei* we must guard against exposure to a hot sun or to cold winds, and it is a good thing to smear the surface before going out with a little of Pick's or Provan's paste.[1] The face should be washed as seldom as possible, and then with tepid rain water and a superfatted soap such as Vinolia.

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[1] ℞ Tragacanthæ,
Glycerini (Price), āā iv.
Boracis, ʒss.
Aquæ destillatæ, q. s.
Fiat pasta.

Erythema intertrigo is very easily dealt with if the general health is satisfactory. The parts may be washed with a solution of permanganate of potash (gr. x. to the ℥j. of distilled water), dried with a soft rag, and an absorbent powder applied.[1] Between times the opposed surfaces may be kept separate by means of small pieces of lint. The application of Unna's zinc or lead plaster, or his zinc ichthyol gelatine, is also very effective.

In *Erythema strophulus* we must mainly rely upon constitutional treatment. The general health must be carefully attended to, and all sources of irritation—teething, worms, constipation, indigestion, and errors of diet—removed. After this has been done, the use of a mild current of electricity to the spine, or small doses of antipyrine at night, may be tried if necessary. For the relief of the excessive itching the antipruritic lotions and ointments applicable to eczema may be used, but, as the eruption generally occurs in infants, the milder of these remedies should be preferred.

Erythema punctatum.—Such cases must be treated on the same principle as in the case of a mild febrile attack, any ascertained disorder of any of the internal organs being rectified. As a local application gentle inunction, night and morning, with warm camphorated oil, may be of use, or some emollient ointment. When it is borne in mind that this is generally a mild affection which runs a short and definite course, the inexpediency of very active treatment is apparent.

Roseola is a very mild affection which usually passes off speedily even without treatment. Attention to the general health, and especially to the state of the digestive organs, and the rectification of any derangement which may be present, usually suffices, and local treatment is seldom required.

Erythema circumscriptum.—We have here to deal with a simple erythematous inflammation consequent upon seborrhœa, so that, apart from careful attention to the general health, we must treat the disease on the same principle as we would deal with a seborrhœa. An immense variety of local applications may be used with advantage, but it will be sufficient in this place to mention two or three. The patient's underclothing must be renewed frequently, and he should be specially warned against wearing the same flannels day and night continuously, as is so generally done in these cases. The body should be thoroughly washed with warm, soft water and soap (*e.g.* Eichhoff's "resorcin-salicylic soap," or Hebra's "spiritus saponis alkalinus") once a day, and rubbed dry with a rough towel. A soothing ointment may then be well rubbed into the parts, the composition of which is indifferent. When the scales are quite gone, a lotion of carbolic acid (ʒij. glycerine, ʒv. rectified spirit, ℥ij. distilled water to ℥vj.), or of liquor carbonis detergens (℥j. to ℥v. of distilled water), may be applied before the ointment, or ointments containing sulphur, resorcin, ichthyol, salicylic acid, or tar[1] may be employed. Under such treatment the eruption rapidly disappears, but if the remedies are not continued for a long time afterwards, and the general health put in a satisfactory state, relapses are very apt to occur.

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[1] ℞ Pulv. zinci oxidi,
„ lycopodii, āā ℥ss.
Acidi salicylici, 3 %.
M.

Pityriasis rosea.—A disease which, like this one, has a tendency towards spontaneous recovery, does not require very active treatment. Any derangement of the general health, of the digestive organs in particular, must be rectified in the usual way, and mild local applications, such as are useful in erythema simplex, may be employed. Gibert was in the habit of recommending alkaline lotions and sulphur baths; Vidal is in favour of the latter, after washing with tar soap, and Radcliffe Crocker lauds the application of calamine lotion with the addition of ten minims of liquor carbonis detergens to the ounce.

Erythema multiforme and nodosum.—In these cases irregularities of diet and derangements of digestion must be carefully inquired for and corrected, and if this does not succeed, and especially if the eruption occurs in the subjects of the rheumatic diathesis, antirheumatic remedies—*e.g.*, salicine in 20-grain doses every two hours—may be tried. In chronic relapsing cases, when the state of the digestive organs is satisfactory, arsenic may be given. Local applications may be resorted to in some cases, such as water dressings, or lotions containing Goulard's extract, or carbolic acid, in the proportion of a tablespoonful mixed with an ounce of glycerine and 10 ounces of distilled water. In erythema nodosum the recumbent posture is generally necessary, and the limbs may be raised upon pillows. In many instances treatment seems to be of little avail, and a spontaneous cure is a common result.

In *erythema læve* the primary disease, which has given rise to the œdema, demands our immediate attention. The recumbent posture is generally indispensable, and, if the lower extremities are involved, they must be kept elevated. The parts may be painted with zinc ichthyol gelatine after melting it, or some other soothing application may be used, and a carefully adjusted bandage is needful. Œdema secondary to erythematous inflammation indicates an acute process, and must be treated accordingly.

In *Erythema paratrimma* (commencing bedsore) we must carefully attend to the condition of which this inflammation is a complication, and do everything in our power to improve the general health. The exciting cause being the long-continued pressure of prominent parts upon the bed, we must necessarily try to obviate this by keeping the patient off the affected part, or by the use of an air cushion, the aperture of which corresponds with the inflamed skin, or by placing him upon a water-bed, so that the weight of the body is not concentrated upon any one part. As local applications, frequent washings with camphorated spirits of wine are to be recommended, or the application of glycerine of tannin, or a mixture of collodion and castor oil, or white of egg beat up with rectified spirit, or a drachm of sheet guttapercha dissolved in an ounce of chloroform (Murchison). If the skin becomes abraided, the parts may be painted daily with nitrate of silver solution (gr. x. to the ℥j.), and then covered with zinc ichthyol gelatine. If sloughing occurs charcoal poultices sprinkled with powdered cinchona may be applied, or, as recommended by Dupuytren, pledgets of lint, soaked in lime juice, and sprinkled with a mixture of powdered cinchona and charcoal. After separation of the sloughs the ulceration may be treated with stimulating lotions, such as Hey's wash. In obstinate cases the continuous warm bath may be resorted to.

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[1] ℞ Sulphuris, ʒj.
Lanolini anhydrici,
Cerati Galeni, āā iij.
Glycerini (Price), ♏ xl.
M.

Or, ℞ Resorcin,
Ichthyol,
Acidi salicylici, āā 2 %.
Unguenti petrolei, ℥j.
M.

In *Erythema pernio* (Chilblain) our object must be to accelerate the stagnant circulation. For this purpose the affected parts should be warmly, but not too tightly, clothed, and brisk walking exercise should be taken if the state of the feet permits of it. If cold feet are much complained of, the patient may be recommended, just before stepping into bed, to plunge them into cold water and then rub them dry with a rough towel, after which a hot bottle may be used. A great variety of stimulants has been employed, such as rubbing the affected parts with snow, camphorated oil, linimentum ammoniæ, or a mixture composed of equal parts of white of egg, spirits of turpentine, and distilled vinegar (Erasmus Wilson). Devergie advised the moistening of the parts with spirits of wine and then setting fire to it; while others apply sinapisms from time to time. Dr Wallace, of Colchester, has found unbroken chilblains to disappear invariably within a few days by "dabbling on them a good lump of ordinary made mustard" every night before the fire, and rubbing it in until the part is quite dry and warm. These, and many others of a similar kind which need not be mentioned, are all recommended with the same object, viz., to stimulate the circulation of the part.

If, however, ulceration has occurred, warmth, elevation, and rest are required, and friction should be avoided. The ulcers must be treated, according to their nature, on the principles applicable to ulcers in general, but, if sluggish, a favourite remedy is equal parts of spirits of turpentine and resinous ointment. In all cases the general health requires careful attention; tonics are usually indicated, among which arsenic and quinine must be placed in the first rank; and digitalis may be tried if there are any signs of heart failure.

II.—TRANSFUSION OF HUMAN BLOOD IN THE TREATMENT OF PERNICIOUS ANÆMIA.[1]

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MR PRESIDENT AND GENTLEMEN,—I do not intend in this paper to attempt any serious discussion as to the pathology of pernicious anæmia, nor shall I spend time in endeavouring to *prove* that all the cases which I shall bring forward were incontestable examples of that disease. I *believe*, however, that the following five cases—in which nine transfusions have been performed—were cases of pernicious anæmia.

They certainly possessed the following claims to be included in that group:—In all of them the type of the anæmia was that met with in pernicious anæmia: it could be traced to no sufficient cause, and in spite of the most improved ordinary remedial measures—including drugs, dieting, and general management—it tended towards a fatal result.

In this paper—long as it is—I am obliged to omit, at present, a large number of the observations made and recorded in my reports, and to limit myself to the evidence afforded by the blood.

Before proceeding to discuss the influence of transfusion on pernicious anæmia it is absolutely necessary to glance in the briefest manner at the facts known and the views entertained regarding this disease. The following facts are recognised on all hands:—

First, The disease is characterised by a progressive and remarkable reduction in the number of the red blood corpuscles; they may fall to a fifth or a tenth of the normal percentage. This reduction is accompanied by various alterations in form, size, and characters.

Second, Along with this, there are evidences of a greatly increased and peculiarly modified destruction of blood corpuscles in certain organs, such as the liver, one of the normal functions of which is to destroy exhausted blood corpuscles which have served their purpose and lived their life.

Third, There are evidences of altered genesis of blood corpuscles in the blood-forming organs, such as the marrow of bone, etc.; that most usually observed being an over production in the number, and an under production in the quality of the corpuscles.

Fourth, These abnormal conditions are not definitely attributable to any ascertainable cause, and differ in essential characteristics from those observed in all other anæmias.

Theoretically, such an anæmia, with all these coincident facts, might be accounted for in a variety of ways:—

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[1] Read at the Discussion on "Pernicious Anæmia and its Treatment by Transfusion," in the Edinburgh Medico-Chirurgical Society, on June 22nd.

1*st, A faulty genesis of corpuscles in the blood-forming organs,*—the result being corpuscles which are imperfect, deformed, delicate, short-lived, and easily destroyed by any destroying agent, *e.g.*, by the action of the ordinary blood-destroying organs, such as the liver, or by any poison.

2*nd, An over activity, and perhaps a modified activity, in the organs which normally destroy the old worn-out blood corpuscles:* the changes in the blood-forming organs and in the corpuscles being merely secondary.

3*rd,* It is quite possible that *both of these factors might be coincident:* imperfect formation and excessive destruction of the blood corpuscle being both results of the same disturbing cause.

4*th,* The starting point of the whole process might be *some poison—ptomaine or other*—introduced through the alimentary canal or otherwise.

5*th,* It should be added that, while the most characteristic cases of this disease have arisen independently of any other discoverable morbid condition, there is every reason to believe that the group of facts and phenomena which are characteristic of this disease—pernicious anæmia—does occasionally *become engrafted upon a wide variety of pre-existing diseases—e.g.*, chlorosis, tape worm, and many others. It is *none the less* a *new disease* on that account, but its clinical features are thereby modified. The pre-existing disease is probably distinctly predisposing.

Many mines of information in the field of the pathology of the disease have recently been opened up, and worked with no little success by such pathologists as Dr Russell of our own school; my former pupil Dr William Hunter, Dr Mott, Rindfleisch, and a host of others. Much precious material has been brought to the surface; but I think it will be admitted that, though *some links* have been successfully forged, a *chain of evidence which will bind all the facts into one consistent theory has not yet been put together.*

Indeed, the pathology of this remarkable disease is still most obscure, and the information chaotic. I therefore offer the following cases as a humble contribution, in the hope that it may add something, however small, to the elucidation of this subject.

Now, there can be no doubt that the view entertained, *à priori,* regarding the *probable nature* of the disease, will very materially influence the *expectation of success* from such a remedy as transfusion of human blood. Thus, if we believe the explanation of the anæmia is to be found in a vicious activity of the blood-destroying organs, and particularly if we hold, with Hunter and others, that this is caused and aided by a blood-destroying poison absorbed from the alimentary canal, we could expect very little and very temporary assistance from the introduction of so small an amount of blood as from 2 to 6 ounces.

On the other hand, if we believe the explanation of the anæmia to be this:—That, owing to some modification of their function, the blood-forming glandular organs have lost their power to produce healthy, properly constituted, and normally long-lived blood corpuscles, our expectation of a beneficial result should be very much more hopeful. For in the former case the blood corpuscles added by transfusion, and considerably injured by exposure during the operation might be expected to be destroyed in their first circulation through the portal system. In the latter case, however, we might anticipate that the addition of even so inconsiderable an amount of rich healthy blood, containing normal blood corpuscles, would improve the condition both of the faulty blood-forming organs and of the faulty blood with which it came into contact. It was in the hope inspired by the latter view—which I held in 1885—and which I still hold with some modifications, that I determined to give transfusion a fair trial in all my cases of pernicious anæmia which failed to respond to other rational and approved methods of treatment. From the outset I believed that, to estimate the value of transfusion fairly, it would be necessary, should the first transfusion fail to accomplish a cure, to repeat the operation as often, and at such intervals, as the progress of the case should demand. No one would judge the value of the most powerful remedy from the administration of a single dose.

I have excluded from this paper four cases of pernicious anæmia, more or less advanced, which responded satisfactorily to ordinary treatment, more especially to arsenic in carefully regulated doses.

The following group comprises only those in which, all other rational treatment having proved useless, transfusion of human blood was resorted to as a *dernier ressort*, but as a last resource which seemed from the first to promise the very best results. I offer them for your consideration, then, in the belief that they in some measure support the following conclusions:—

1. That in the transfusion of human blood we have a powerful means of arresting the progress of this grave disease.
2. That the operation in skilful hands, and with due precautions, is perfectly safe.
3. That a number of precautions must be attended to in performing transfusion, if inconvenience and even risk to the patient are to be avoided.
4. That the results observed in these cases throw a suggestive side-light on the probable nature of the disease, supporting, although not absolutely shutting one up to the view that the anæmia is probably mainly due to a failure in blood genesis rather than to an excess in blood destruction.

While, as I have stated, I believe that the results of transfusion must be taken into account in any theory of the pathology of the disease, I may now say that the purpose of this paper is *therapeutical* rather than *pathological*, and therefore I shall not waste time over any further discussion of the unity or diversity of the forms of pernicious anæmia, but will found my diagnosis of the cases dealt with in this paper on somewhat broad lines; for the physician cannot afford to wait until pathologists have settled all their nice points of difference regarding diseases before he treats those suffering from them. Indeed, of many diseases it may be said that the treatment is nearly perfect, while the pathology still remains as mysterious as ever.

The following are the cases very much abbreviated:—

CASE I.—Mrs G., married, æt. 34, housewife, came of a fairly healthy stock. Between the ages of 16 and 22 she was in New Jersey, and while there she suffered from ague. She, however, was quite well after her return to this country, and was married when 24 years of age. She had four children; and although in connexion with the births of some of these she suffered considerably, she had intervals of good health. For two years before the birth of her fourth child she was very well. After this child was born she fell off and became very weak, and there was at this time some swelling of the glands of the neck. This, however, disappeared under treatment. She was never quite strong after this. In the summer of 1884 she again became pregnant, and during her *tempus pariendi* she was much troubled with sickness and purging.

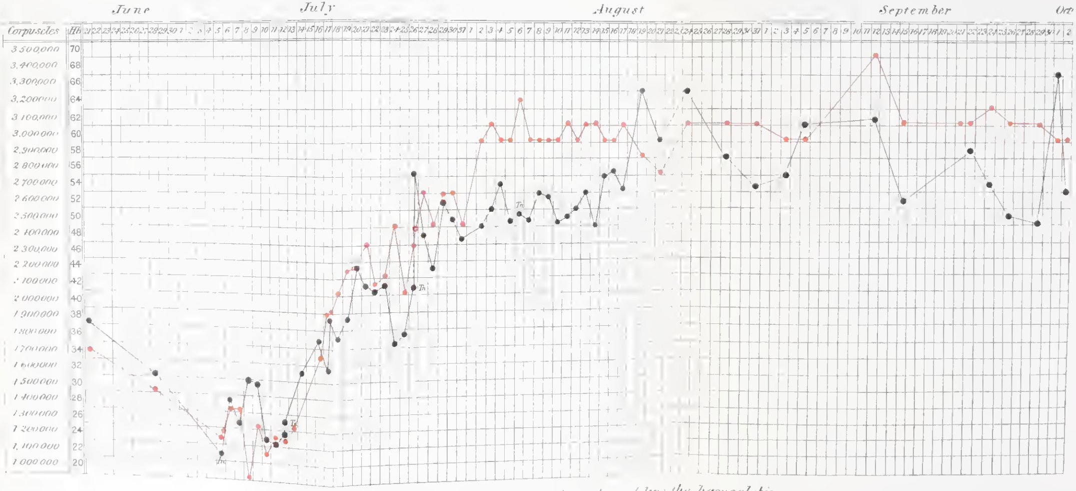
On February 27, 1885, she gave birth to a seven months' fœtus. After this she was very weak and torpid for a month, then she improved somewhat for a time; but again she fell off, and grew weaker and weaker, until she was admitted into the Infirmary under my care on 19th June 1885. She had been a good deal troubled with dyspepsia before she came in. For her weakness, quinine and iron had been administered without avail.

On admission her weight was only 6 st. 3 lbs. She was deadly pale, and her face and body generally had a yellowish tinge; but there was no jaundice, dropsy, or cyanosis. There were a few swollen glands on the right side of the neck; none anywhere else. The spleen and thyroid were normal in size. Examination of the blood showed the following conditions:—Hæmoglobin, 35 per cent.; red blood corpuscles, 1,900,000 per cmm.; tailed corpuscles, 5 per 100; leucocytes, 5 per 100 squares. There were numerous microcytes. The red blood corpuscles were extremely unhealthy looking, and varied in size, many of them being much smaller than normal.

Examination of the circulatory organs elicited the ordinary evidence of the results of extreme anæmia, viz., faintness, occasional palpitation, systolic murmurs in all the areas, a *bruit de diable* in the deep jugular veins, and a weak, compressible, but regular pulse, about 80 per minute. She suffered from flatulence, heartburn, and acidity after meals. The bowels were rather costive.

The eyes were examined on July 10th, and the remains of an old hæmorrhage was seen in the retina in the left eye alongside a vessel running upwards and outwards from the fundus. She suf-

CASE I MRS G.



The black line indicates the blood corpuscles, the red line the haemoglobin fered from amenorrhœa. All the other systems were fairly normal.

She was admitted, as I have said, on the 19th of June 1885, and on that day, owing to extreme weakness and rather troublesome dyspepsia, she was put on milk diet. This was, however, after a few days changed to convalescent diet. The blood was examined for the first time on the 21st of June, two days after admission, and the characters were found to be as above stated.

On *June 27th* she was ordered, in addition to other food, one peptonized beef suppository every four hours by the bowel, and a mixture containing 5 grs. of citrate of quinine and iron and half a minim of Fowler's solution of arsenic.

On *June 28th*, a week after the first examination, the hæmoglobin of the blood was found to have fallen to 30 per cent.; and the red corpuscles to 1,600,000 per cmm.

On *July 3rd* the quinine, iron, and arsenic mixture was discontinued, as it was disagreeing with her stomach. Liquor arsenicalis in ♏ij. doses was ordered three times daily immediately after food.

On *July 5th*, a week after the last examination of the blood reported above, it was found that the hæmoglobin had fallen to 24 per cent., and the red blood corpuscles to 1,160,000 per cmm.

The temperature from the first was above normal, ranging irregularly between 99° and 100·8° F.

The patient was becoming much weaker, and as the red blood corpuscles had fallen in a fortnight from 1,900,000 per cmm. to 1,160,000, and the hæmoglobin from 35 per cent. to 24 per cent., it was clear that there was a steady progressive deterioration of the blood for which no sufficient cause could be found. This deterioration continued to progress in spite of arsenic and careful dieting.

The diagnosis in this case lay between lymphadenoma and pernicious anæmia. The characters of the blood, and the great reduction in number of the red corpuscles, however, and the absolutely stationary and localized condition of the enlarged glands in the neck, rendered it almost certain that—however it might have originated—*the disease which we now had to deal with was pernicious anæmia.*

It is very exceptional to find so severe an oligocythæmia—apart from any hæmorrhage—in any of the forms of wasting disease, such as carcinoma, lymphadenoma, or unless in very rare cases in which it is probable that a true pernicious anæmia has become superadded. Indeed, in very few wasting diseases is the number of the red blood corpuscles per cmm. reduced—even in the *extremest state* of *anæmia* caused by them—below 3,000,000 or 2,000,000 per cmm. The unanimous opinion of a large number of physicians, who saw the case at the time, was that it must be regarded as a case of true pernicious anæmia. The question now arose, Could anything further be done to arrest the progress of the disease in this patient? Arsenic was ill borne in even ♏ij. doses, and it with careful nursing, and dieting by stomach and bowel, had failed to arrest the downward progress.

At this time—seven years ago—Dr William Hunter had not published any of those able researches which have since given so strong an impetus to the view that the disease is a hæmolytic rather than a cytogenic disease, *i.e.*, is due rather to excessive destruction of blood corpuscles than to their faulty formation and consequent tendency to early death.

I held, as I am still disposed to hold, that pernicious anæmia is mainly due to a *faulty genesis of the corpuscles in the blood-forming organs, and a consequent tendency to their early death in the blood-destroying organs.* That the disease was not necessarily incurable was shown by the beneficial action of arsenic in many cases of pernicious anæmia. I determined, therefore, to try the effect of *repeated transfusions,* in the hope that the normal function of the blood-forming organs might thereby be restored; or that, even should transfusion, performed at intervals, not suffice alone to cure the disease, its occasional performance from time to time might *give such an impetus to* the *blood-forming organs* as would bring them within the influence of the curative action of arsenic.

At this time transfusion of human blood was in very bad odour as a remedial measure—being regarded as both dangerous and useless by most authorities. I asked Dr John Duncan to see the case with me. Indeed, this is the case to which, as some of you may remember, Dr Duncan referred in 1886 in his able paper "On Reinfusion of Blood in Primary and other Amputations," as having suggested to him the idea of transfusion in surgical hæmorrhage. It has thus an additional and historical interest. After full and careful consideration of the matter, and of the various methods of transfusion, he advised the indirect method, and agreed, as soon as I should think fit, to operate. On July 5th I advised the operation, and Dr Duncan performed it at 12 noon.

The blood was taken from a very strong, healthy student, Mr Thomas White. It was about the average in richness in blood corpuscles, *i.e.,* 5,000,000 per cmm. I need not detail the operation, as it has already been given by Dr Duncan in the paper I have mentioned, and which is published in the *Transactions* of this Society for 1885-6. Suffice it to say that the indirect method was employed, and the blood was kept fluid by admixture with $\frac{1}{3}$ part of its bulk of a 1 in 20 solution of phosphate of soda in distilled water kept at blood heat. Six ounces of the blood with two ounces of the phosphate of soda solution in all were injected. During the operation I kept my finger on the patient's pulse, and we regulated in this way the rate at which the injection was performed by Dr Duncan, who slowed the proceeding when any marked change in the pulse-rate or respirations was noted. As the transfusion proceeded it was observed that the pulse steadily increased in force and volume, but did not alter in rate.

At 7 P.M. the same evening, it is stated in the report,—"Patient feels better; her pulse has decidedly *increased in volume.* After the transfusion she had a motion of the bowels which was slightly loose." Seven hours after the transfusion the blood was again examined, and the red corpuscles were found to have risen from 1,160,000 to 1,470,000 per cmm., *i.e.*, there was an increase of 310,000 per cmm. Curiously this corresponded almost exactly with an approximate estimation made before the transfusion by calculating the probable total amount of blood in the body, and the proportional amount added by injecting 6 oz. of blood. On this, as on all other occasions, before and after the transfusions, the observations were checked, a large number of estimations being made and an average taken.

The next point which we were anxions to note was this:—Would this addition to the blood corpuscles be *rapidly lost?* or would evidence of its *beneficial action on the blood formation* be shown by a *permanent and progressive improvement* in the blood?

Neither Dr Duncan nor I expected from this first transfusion more than a comparatively transient effect. My determination, however, was that whenever a decided declension in the number of the blood corpuscles should once more become apparent, we should again transfuse without delay. As a matter of fact we let the patient down nearly as far as she had been previous to the operation, before it was repeated. But before we pass on, let us glance at the main effects of this first transfusion. These were as follows:—

First, There was not only an immediate gain in the number of corpuscles per cmm., but for a short time thereafter there was a slight upward tendency in both corpuscles and hæmoglobin. This was maintained for about three days, and then there was a rapid declension until five days after transfusion, when almost as low figures were reached as before the operation had been performed.

Second, Another marked alteration in the blood is noted in the report as follows:—"Each examination of the blood before the transfusion showed numerous microcytes: the red blood corpuscles were extremely unhealthy looking, many of them being much smaller than usual; and the leucocytes numbered only 5 in 100 squares. On examining the blood after transfusion, it was found that the microcytes had gradually diminished in number, and the red blood corpuscles had assumed a more healthy appearance. About five or six days after the first transfusion, no microcytes were visible; and they were never seen at any subsequent examination. The red blood corpuscles had also greatly improved in size, and regained their normal appearance: this healthy appearance they maintained until patient left the Infirmary nearly cured."

Third, After the second transfusion the temperature, which before the transfusions were commenced had ranged from 99° to

100·8°, gradually fell, and on August 30th became normal. It remained so until she left the Hospital.

Fourth, Patient's general condition decidedly improved. The pulse continued to be fuller and firmer. The cheeks and lips were better coloured, and patient felt altogether better. This general improvement continued to advance progressively until the patient left the Infirmary; *but I am anticipating*, as we had still to repeat the operation on three subsequent occasions before she left.

The second transfusion was performed on July 12th.

The corpuscles before transfusion numbered 1,300,000 per cmm.
„ after „ „ 1,670,000 „

Increase, 370,000 „

The third transfusion was performed on July 26th, while the corpuscles were rising in number.

The corpuscles before operation numbered 2,215,000 per cmm.
„ after „ „ 2,820,000 „

Increase, 605,000 „

Part of this increase may be attributed to *an improved resistance to destruction on the part of the corpuscles from admixture with healthy blood.*

The fourth transfusion, performed on August 7, was unsatisfactory in this respect, that a 10 per cent. instead of a 5 per cent. solution of phosphate of soda was employed. Now the action of too strong a solution of that salt is to damage the blood corpuscles. There was, therefore, not the usual rise after this operation, but the reverse.

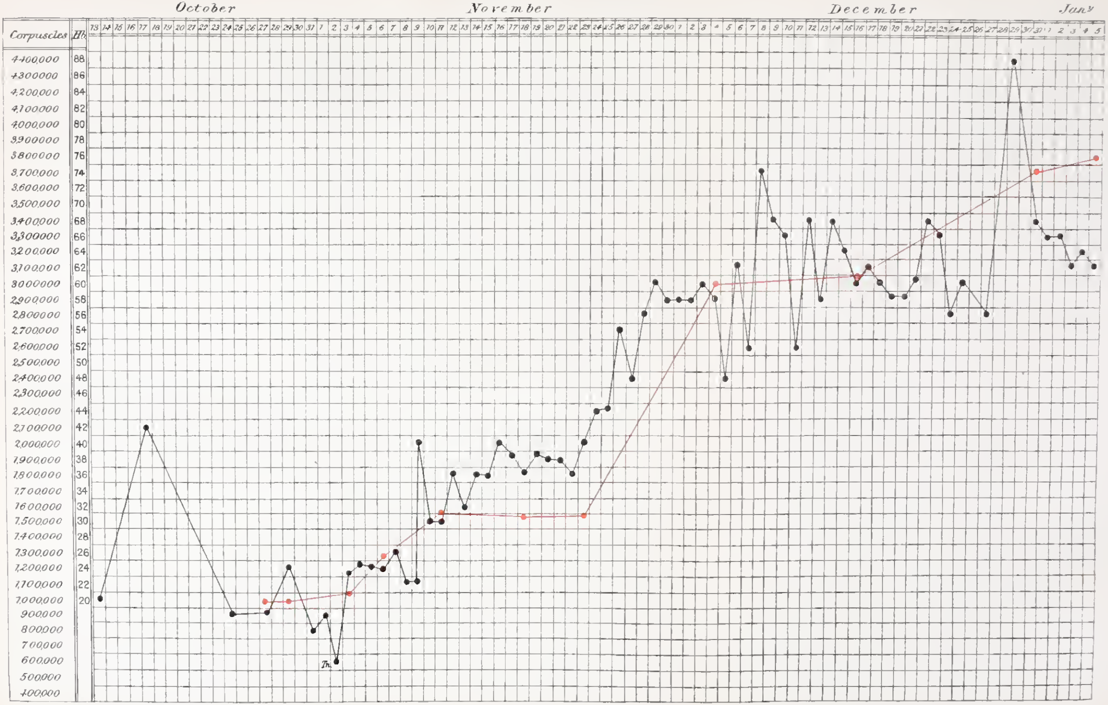
The corpuscles before transfusion were 2,575,000 per cmm.
„ after „ „ 2,505,000 „

Decrease, 70,000 „

She refused to be transfused any more, although strongly advised to have the operation repeated until she was quite restored. When she left the Hospital, on October 2, her blood corpuscles were about 3,000,000 per cmm., and her hæmoglobin 60 per cent., both having been trebled since the first transfusion. Her strength and colour had greatly improved. I did not consider the cure complete, although I have no doubt that she would have been cured had the treatment been continued.

For some months she remained fairly well, and able for her household duties. The anæmia, however, recurred, and although the treatment by arsenic was again prescribed by the late Dr White, her physician, she died a few months after her return to Yetholm of the same disease.

Case II. Mrs. A. M.



The black line indicates the blood corpuscles; the red line the hæmoglobin.

Case II.—Mrs A. M., æt. 25, housewife, married, born at Dalgetty, residing at Crossgates, Fife, was admitted into Ward XXXIII. of the Edinburgh Royal Infirmary on October 11, 1888.

Her family history was remarkably good. Her father and mother, as well as her two children, were all alive and very healthy. About 7½ months before admission her present illness commenced without any definite cause. Her appetite began to fail, she lost flesh considerably, and sometimes she was sick after meals. These symptoms gradually increased, and she became so weak that she was advised, and decided to come into the Infirmary. No other symptoms had developed. Patient had not menstruated for eight months. This was all the history.

The following is a summary of her state on and after admission:—Height, unascertained; weight, 6 st. 7½ lbs.; muscularity, very poor. Her face was fairly well filled out: by no means emaciated, but extremely pale. The conjunctivæ were almost absolutely white; the lips and gums were also very colourless. The skin had a distinctly lemon-yellow tinge. There was no cyanosis, jaundice, or dropsy. There was no swelling of the lymphatic glands, or enlargement of spleen or liver. On admission the appetite was deficient, and she suffered from indigestion, which improved greatly shortly after she had been put on peptonised light food. Examination of the blood and circulatory system showed considerable deviations from the normal.

The following marked and characteristic alterations in the blood were present:—

First, A pronounced oligocythæmia, *i.e.*, the red corpuscles were greatly reduced in number. On admission, October 11, instead of the normal number, 5,000,000 per cmm., there were only 1,000,000. Later on they fell so low as 640,000 per cmm.

Second, There was what Quincke has termed "poikilocytosis," *i.e.*, a remarkable variation in the form and size of the red corpuscles. Some were tailed, some notched, some larger and some smaller than normal, and so forth.

Third, There were numerous microcytes—small coloured corpuscles not usually met with in blood—and which Eichorst believes to be pathogenic of pernicious anæmia.

Fourth, There were a number of distinctly nucleated large red blood corpuscles.

Fifth, There was no increase in the number of the white corpuscles.

Sixth, There was a slight increase in the blood-plates.

Seventh, The hæmoglobin was as low as 20 per cent.

The heart was dilated, and there were all the usual hæmic bruits met with in the heart and veins in cases of extreme anæmia. Patient was much troubled with faintness, palpitation, and breathlessness, especially on exertion. The pulse was poorly filled, very compressible, and varied in rapidity from 90 to 128 per minute.

The temperature was always above normal, irregular, and ranged from 99° to 101° as a rule. Beyond these facts there was nothing noteworthy in any organ.

There never had been any hæmorrhage or weakening discharge of any kind. No one who saw this case doubted that it was a typical example of pernicious anæmia. In the treatment of this patient nothing was done at first beyond careful dieting with light and peptonised foods. Even this, with the airy ward, quiet, good nursing, and rest, had a beneficial effect; for, in six days after admission, the corpuscles had risen from 1,000,000 per cmm. to 1,900,000, *i.e.*, they had nearly doubled in number. During the next seven days, however, they had fallen to 960,000 per cmm.

On *October 27th* arsenic was commenced in ♏iij. doses of Fowler's solution, increased to ♏vij. There was some response to this drug at first, but only for two days. During that period the corpuscles rose from 960,000 to 1,100,000 per cmm. Then they gradually, under the continued use of arsenic, fell to a lower figure than ever—namely, 640,000. I had determined that so soon as, under the use of arsenic, the corpuscles showed a marked tendency to fall, transfusion should be resorted to. A healthy student, Mr Scott, one of my clinical clerks, had kindly offered to hold himself in readiness.

On *November 2nd*, with the blood corpuscles at 640,000, I decided to wait no longer. Dr Duncan was sent for, and transfused into a vein in Mrs M.'s right arm 5⅓ oz. of blood taken from Mr Scott's arm. This blood was above the average richness in corpuscles, containing, as it did, 5,200,000 per cmm. The blood on this occasion was mixed with the *usual proportion of a solution of phosphate of soda*, but by some mistake the strength of the latter was made *1 in 30* instead of *1 in 20*. I may state here that this mistake can be avoided in future by taking the sp. gr., which in a 5 per cent. solution of pure phosphate of soda in distilled water is 1·031. Consequently a considerable amount of the blood coagulated in the glass vessel, and could not be used. In this way only 5⅓ oz. instead of 6 oz. of blood were injected. Owing to this coagulation, and some difficulties encountered during the operation, to which I shall again refer, it did not pass off quite so smoothly or satisfactorily as the previous ones in Mrs G.'s case. The patient had a serious faint during its performance, but was promptly brought round by the employment of suitable measures. Two hours after the operation she was looking and feeling better than before it. Her pulse was decidedly fuller, and her colour had improved. In the evening she felt much stronger. The gums, lips, and conjunctivæ were of a much redder colour, and there was a faint rosy tinge in the cheeks. The corpuscles, which before the transfusion were 640,000, now numbered 1,030,000, being an increase of 390,000 per cmm. After this there was a tolerably steady rise in the number of the corpuscles; and on November

9th, the seventh day after transfusion, the corpuscles numbered 2,080,000, *i.e., they had rather more than trebled in one week.*

The further progress in this case can be followed, to save time, on the Chart. There you can see the remarkable upward line that followed the transfusion. The corpuscles before she left the Hospital had risen to over 4,000,000 per cmm., and the hæmoglobin to 75 per cent. *Soon after the transfusion the temperature, which had ranged between* 99° *and* 101°, *fell to the normal, and there it has remained ever since.* This remarkable rise in the number of the corpuscles and fall in the temperature has been accompanied by a corresponding improvement generally. The pulse has steadily improved in volume, tension, and rate. The cheeks, gums, conjunctivæ, and finger nails have gradually assumed a rosier tint. She has also gained in strength. Her cardiac and venous murmurs gradually disappeared, and she gained about 13 lbs. in weight. About 1 lb. of this, perhaps more, must be regarded as *additional blood.* This 1 lb. of blood, with its many millions of corpuscles, must of course be added to that mere increase of corpuscles per cmm. which appears on the diagram. Not only had the number of corpuscles per cmm. and the bulk of the blood increased, but it should be noted here that *the corpuscles had,* as in the last case, *gradually assumed more normal appearances;* indeed, they became very soon *quite normal.*

Mrs M. left the Hospital on January 8th, 1889—three and a half years ago—and has remained quite well since that date.

These two cases illustrate very well the effects of repeated transfusions when necessary, and of a single transfusion when that sufficed.

The next three cases I will treat more shortly.

CASE III.—Mrs F., æt. 27, married; was the mother of three children. Her family and personal health history were unexceptionally good. Her circumstances altogether were comfortable, and until her present illness she had been perfectly healthy. There was no history or suggestion of syphilitic disease. Early in 1890, while she was nursing her third baby, her eldest child took ill with whooping-cough, and after an illness of seven weeks, it died. Of course this caused her much anxiety. Shortly before its death her appetite began to fail, and feelings of nausea after food developed. Sometime afterwards she began to vomit, and suffered from diarrhœa. She had no epistaxis, hæmatemesis, or hæmorrhage of any kind, and never, to her knowledge, was feverish. Gradually she got paler and weaker. Slight dropsy about the ankles and under the eyes was sometimes observed at night; and on November 5, 1890, she was sent into the Infirmary by Dr Thyne with a diagnosis of pernicious anæmia. She had been treated with iron and arsenic without avail.

On admission she presented all the characteristic features of severe anæmia, and was extremely pale, with the characteristic lemon-yellow tint of pernicious anæmia. No disease of any organ could be discovered to account for the anæmia. The blood was pale and watery looking. It flowed with great difficulty. Microscopic examination elicited the following alterations :—

1st, The red corpuscles were only 715,000 per cmm., a week later only 480,000.

2nd, There were a number of tailed and irregularly formed corpuscles.

3rd, Numerous microcytes—Eichorst's corpuscles.

4th, A number of nucleated red corpuscles, some of large size.

5th, The white corpuscles appeared to be normal.

6th, The hæmoglobin was 26 per cent.

Examination of the eyes showed remains of small hæmorrhages into the retina on the right side, and there were numerous small hæmorrhages into the retina in the left eye.

Although extremely weak, patient held her ground fairly well, and was bright and cheerful, with slight fluctuations in the numbers of the corpuscles, until November 13th, when she wandered a little; nausea came on, and she became drowsy and listless. The pulse became feeble, 123 per minute, small, very empty between the beats, and compressible.

On *November* 14 the corpuscles had fallen to 480,000 per cmm., and she was almost unconscious. It was clear that she was going to die. In this case I had—with the view of giving arsenic, diet, and care a fair trial—*delayed too long*. As, however, she had expressed herself willing to have transfusion performed if and when I thought it necessary, and having obtained her husband's permission, I got Dr Duncan to perform the operation. Only 2 oz. of blood, from the arm of Mr Macintosh, one of my students, could be injected.

Nov. 14.—Before the transfusion the corpuscles numbered 480,000 per cmm.

Nov. 15.—After the transfusion, 580,000 per cmm.

There was thus, a day after transfusion, a gain of 100,000 corpuscles, just about the same proportion as in the previous transfusions. It was, however, too late, and she gradually sank, and died on the night of the 15th. A post-mortem examination showed the characteristic appearances of pernicious anæmia, notably the large excess of iron pigment in the liver, the reddened colour of the bone marrow, together with intense pallor of all the organs, and lemon-yellow colour of the fat.

CASE IV.—R. S., æt. 39, parcel postman, married, was admitted into Ward XXXII. on 10th September 1891, and is still under observation. His mother died of phthisis, a sister is anæmic, and a brother has weak lungs. Otherwise the family history is good.

He drank to a considerable extent at one time, but had been a total abstainer for a year before admission. His present illness would appear to have been mainly caused by great irregularity in the hours of breakfast and work. *It began, as in all the other cases, with symptoms of dyspepsia.* Gradually, during the last two years, he has been getting paler and weaker, and when he came into the Hospital he weighed only 8 st. 13½ lbs. He was extremely bloodless, pale, and flabby looking—indeed, he presented the aspect of extreme anæmia, with the lemon-yellow tinge, which is so characteristic of pernicious anæmia.

On *September* 25*th* the corpuscles numbered 1,200,000 per cmm. They fluctuated up and down about this point in spite of the use of such drugs as iron and arsenic, and carefully regulated diet.

On *December* 16*th* they had fallen to 920,000 per cmm., and as he was extremely weak, and warned by the last case, I feared that so prolonged an extreme anæmia might lead to incurable degeneration of the tissues generally, I determined to employ the transfusion of human blood without further delay.

On *December* 17*th* Dr Duncan transfused from the arm of Mr Webster, one of my clinical clerks, 5½ oz. of healthy blood. Seven hours after transfusion the blood was examined, and the corpuscles, which before transfusion numbered 920,000, were found to have risen to 1,110,000 per cmm., being a rise of 290,000 per cmm. The further results of the transfusion may be summarized as follows, and showed a steady rise in the corpuscles for more than three months:—

The average for the 12 days after this first transfusion was	1,173,000
For January 1892, ...	1,240,000
For February, ...	1,440,000

On *February* 15*th* they were 1,570,000, *i.e.*, 650,000 more than they had been before transfusion. But this does not represent all the gain. During this period he had *gained greatly in strength, and had put on* 9 *lbs. additional weight*, which means about 10 oz. of additional blood teeming with millions of millions of red corpuscles beyond what is shown by their mere increase per cmm.

For the next three months he remained very much in *statu quo;* indeed, although the increase in his weight was maintained, the corpuscles showed a tendency to diminish again. We therefore determined to repeat the transfusion. On *March* 9*th* he himself was eager to have the operation repeated, so grateful was he for the result of his first transfusion. The corpuscles at this time were 1,280,000 per cmm. 4¾ oz. of blood from the arm of Mr Sandeman was mixed with 3¼ oz. of the phosphate of soda solution, and of this about 7½ oz. were injected, *i.e.*, a little over 4 oz. of blood. Now, although the operation in this case was most satisfactorily performed, a double error was made in the preliminary state of preparing the solution.

1*st*, The distilled water—obtained as such from the chemist's department in the Infirmary—with which the solution was prepared was found afterwards to have been *distilled some months before.* It was quite opalescent, and contained a quantity of flocculent-like substances floating through it.

2*nd*, The solution had not been, as usual, *twice brought to the boiling point before being used.* These mistakes were, of course, not found out until afterwards, but they fully accounted for the unsatisfactory immediate results in this case, which were as follows:—

About fifteen minutes after the transfusion was over, *i.e.*, at 1·30 P.M., patient had a severe rigor, with vomiting and intense pain in the stomach; his pulse, which had fallen during the operation from 84 to 72, became irregular. At 2·15 P.M. his temperature had risen from normal to 104°. His urine became bloody-looking, and was found by Dr Noël Paton to contain a considerable amount of hæmoglobin, but no blood corpuscles. During the next day or two the right arm, where the injection had been made, became sore, and he complained of pain in the axilla. A *herpetic* eruption appeared on right upper eyelid, which was also swollen and red, and on the lower lip. This eruption soon became *pustular.* There could be no doubt that poison of some kind had been injected. The arm afterwards became intensely œdematous, and there was pain along the line of the veins above the seat of the transfusion. I need hardly say that the immediate effects of the transfusion were greatly interfered with by this feverish attack. The result on the corpuscles was that, whereas before the transfusion the red corpuscles numbered 1,280,000 per cmm., and the hæmoglobin 27 per cent., seven hours after the transfusion the red corpuscles had fallen to 1,190,000 and the hæmoglobin to 25 per cent.,—there was thus a fall in the corpuscles to the extent of 90,000 per cmm.

The temperature fell considerably on the evening of the 9th, the day of transfusion, but remained irregular for several days, reaching 102° on the 12th. Then it and the other feverish symptoms gradually subsided, and simultaneously the corpuscles began to rise again. They, indeed, gradually rose to about the same average as that preceding the transfusion, and fluctuated about that point till about the end of April, when they again began to rise higher. The average of seven observations taken between the 1st and 24th of May gives 1,770,000 corpuscles per cmm. His general health has greatly improved, and he is still gaining in weight.

When he came in he weighed . .	8 st. 13½ lbs.
Now he weighs	9 „ 9 lbs.

It is my intention to have him transfused again very soon, and

I have no doubt that by rigid attention to every precaution we will have a thoroughly satisfactory result in this case.

CASE V.—T. B., æt. 63, church officer, married, came of a healthy stock, and was himself quite well until October of last year (1891). His present illness began in this way. One day when he was very busy he missed his lunch; indigestion and nausea came on, and from that time he gradually became weaker and paler, till he was sent into the Infirmary under my care by Dr William Russell on March 5th, 1892.

Iron and arsenic, and arsenic alone, had been administered before his admission without effect, and as he had rapidly been going down hill latterly, was very weak, and his corpuscles on admission numbered only 840,000 per cmm., it was determined to transfuse without delay.

On *March 9th* the corpuscles numbered 890,000 per cmm., and on that day he was transfused. Mr M'Nicoll, one of my students, gave his blood, and the solution employed was the same faulty solution which was used in the second operation in R. S.'s case,—indeed, both operations were performed on the same day, T. B.'s being taken first. Owing to coagulation of the blood in the vessel only 1½ oz. of blood were injected. There was thus a smaller amount of both the solution and of the blood than in any other operation. Patient stood the transfusion well; his pulse fell during the operation from 100 to 92, and remained steady and full. Temperature at 12, before the operation, was 98°, at 1 P.M. it was still normal. A quarter of an hour after the operation he had a severe rigor which lasted 50 minutes. Temperature at 2 P.M. was 102°. The pulse was 124, respirations 18 per minute. By 9 P.M. the temperature had fallen to 98·2°, and there it remained. There was no swelling of the arm or secondary eruption or complication in this case, such as we had in S.'s case.

The effects of the operation in this case were as follows:—

Before transfusion the blood corpuscles were .	890,000	per cmm,	Hb. 11%
After transfusion the blood corpuscles were .	930,000	„	Hb. 13%
Increase	40,000	„	2%

From this time onwards there was a very steady, rapid increase in both blood corpuscles and hæmoglobin. And by April 30th, *i.e.*, 52 days after the transfusion, the corpuscles numbered 4,200,000 per cmm., and the Hb. 54 per cent. His weight had also risen from 8 st. 10½ lbs., which it was on the day of transfusion, to 9 st. 6 lbs., *i.e.* an increase of 9½ lbs. He was altogether better and stronger; this was acknowledged by him and recognised by all who saw him.

It is difficult to account for the termination of this case.

From the time of the operation until the 2nd April, *i.e.*, for nearly four weeks, the temperature remained normal. On April 2nd it rose on one day from 97°·8 to 102°·8, and thereafter remained irregularly pyrexial.

On *April* 23*rd* signs of consolidation with crepitations were noted in the left sub-clavicular region. Up to this date the corpuscles and hæmoglobin had steadily increased, and his weight had been maintained. From this date onwards the course of the case was that of a rapidly progressive phthisis, and he died on May 16th. To the end, however, the corpuscles remained over 4,000,000. The post-mortem showed marked diffuse tuberculosis of both lungs.

That the anæmia was not tubercular may be taken for granted; for in tubercular phthisis the proportion of *red corpuscles per cmm. is as a rule—indeed almost invariably—normal or above the normal,* while the *total bulk* of the blood and of the corpuscles is *greatly reduced.* In this case *the anæmia was rapidly disappearing, and the bulk of the blood increasing,* when the symptoms and signs of phthisis appeared.

Was this man infected in the wards, either from the injected blood or through the atmosphere? We cannot positively answer this question. The sad termination does not negative the fact that he had during the interval following the transfusion almost recovered from his pernicious anæmia.

I must ask your indulgence for a little while I gather together what is to be learned from these cases, and I will do so under the following heads:—

First, The results anticipated from transfusion of human blood, and those actually obtained when the operation was in all respects satisfactorily performed.

Before operating at all the question we put to ourselves was this, What is the utmost that we can expect from the injection into the veins of a patient suffering from pernicious anæmia of a definite amount of human blood? My belief was, and still is, that, with proper precautions, blood equal in vitality to living blood might be injected into a human being's veins. I further believed that the admixture of a considerable quantity of living healthy blood with the blood of the diseased individual might powerfully influence the diseased blood with which it became mixed, increasing its vitality and resistance to destructive influences, and that it might also beneficially affect the blood-forming organs, tending to a restoration of their blood-forming power. For the purpose of testing this point we attempted, from the weight of the patient's body and the relative amount of the blood—taken as about 1-13th of the body-weight—to estimate approximately the proportionate number of blood corpuscles that would be added to each cmm. by the injection of a definite amount of normal human blood. This probable addition we determined to compare with the actual results obtained at a considerable interval after transfusion. Thus we calculated in the case of Mrs G., who weighed 6 st. 3 lbs., that by the addition of 6 oz. of normal blood we should gain an addition of about, indeed a little over, 300,000 corpuscles per cmm. Now, although we had made this calculation, we were exceedingly surprised to find that, from the first transfusion, we had obtained an addition of 310,000 corpuscles per cmm. That this was not a mere accidental and pretty coincidence has been shown by the fact that nearly *every properly performed subsequent transfusion not complicated with fever has been followed by a like proportionate increase in the number of the corpuscles.* The inference which one cannot avoid drawing is that all the red corpuscles in the blood of a healthy donor are really added to the blood of the recipient without any perceptible destruction of them in the process. Let me recall the immediate results of the different transfusions so as to illustrate this point.

1*st Transfusion.*—In Mrs G.'s case,

Before operation,	1,160,000	per cmm.
After ,,	1,470,000	,,
Increase,	310,000	,,

2*nd Transfusion.*—Now I must remind you that Mr Hardyman's blood, which was used in this operation, was very rich in corpuscles, there being 5,500,000 per cmm. We therefore looked for a greater addition of corpuscles than in the first operation. These are the facts.

Before operation,	1,300,000	per cmm.
After ,,	1,670,000	,,
Increase,	370,000	,,

3*rd Transfusion.*—This was performed when the corpuscles *showed a decided tendency to progressive increase.* The result is very interesting, for we got much more than could be accounted for by the mere addition of the blood.

Before operation,	2,215,000	per cmm.
After ,,	2,820,000	,,
Increase,	605,000	,,

Part of the rapid increase of the blood corpuscles must be accounted for by an impetus given to the blood-forming organs on the one hand, and to the already improving blood corpuscles on the other, increasing the resistance of the latter.

4th Transfusion.—In Mrs M.'s case, weight almost the same as Mrs G.'s, 6 st. 7 lbs.

Before transfusion,	640,000	per cmm.
After „	1,030,000	„
Increase,	390,000	„

In this case the *donor's blood was extremely rich in red corpuscles.* Thus we see that in these cases of pernicious anæmia, the body weight being 6 st. 3 lbs. in the one, and 6 st. 7 lbs. in the other, the injection into the vein of 6 oz. of healthy blood was calculated to add, and actually did add, about 300,000 red corpuscles per cmm.

5th Transfusion.—Mrs. F., weight 5 st. 5 lbs. Rather less than 2 oz. of blood, instead of 6 oz., were added in this case.

Before transfusion,	480,000	per cmm.
After „	580,000	„
Increase,	100,000	„

This was just what might have been anticipated from the injection of rather less than a third of the amount of the blood injected in the previous cases.

6th Transfusion.—R. S., weighed 8 st. 13 lbs., and therefore from a similar amount of blood a smaller rise was to be expected.

Before transfusion the R. B. Cs. were	920,000	per cmm.
After „ „	1,110,000	„
Increase,	290,000	

7th Transfusion.—T. B., weighed 8 st. 10 lbs.; owing to coagulation of blood in the dish received only about 1⅓ ozs.

Before transfusion,	890,000	per cmm.
After „	930,000	„
Increase,	40,000	„

This operation was, however, unsatisfactory, and will be referred to again. But the fact that all the blood corpuscles were added to, and remained circulating in the blood for a period of not less than two or three days—important though it undoubtedly is—was by no means the most satisfactory result gained.

Most of these transfusions *were followed by a progressive rise in the number of the blood corpuscles above the number added by transfusion.* This is the most satisfactory point of all. This result was noted after all the four transfusions in Mrs G.'s case,—most strikingly after the second and third operations.

In *Mrs M.'s* case the ascent was rapid and striking up to complete recovery, after only one transfusion. In *R. S.'s* case there was a steady rise for several weeks after the first transfusion, and a postponed rise after the second unsatisfactory operation. In T. B's. case, although a serious mistake occurred, to which we shall have to refer immediately, his corpuscles rose rapidly after his first transfusion, reaching 4,200,000 on April 30th, *i.e.*, fifty days after transfusion.

Second, The lessons to be learned from our mistakes.

1*st*, Unless great care is taken in the preparation of the solution and the instruments and vessels employed, injury may be done to the patient. I have no doubt the rigors, fever, phlebitis, herpetic eruption, and destruction of corpuscles in connexion with the second operation in R. S.'s case was the result of the impure distilled water used, and the failure to boil the solution previous to its employment. *We had no fever in any of the satisfactory transfusions.*

2*nd*, The substitution of a too strong solution of the phosphate of soda may cause a fall instead of a rise in the number of the corpuscles. This was illustrated in the fourth transfusion in Mrs G.'s case, in which a ten per cent. solution was employed instead of the five per cent. solution. The result was a slight fall, instead of the usual rise in the number of the corpuscles.

3*rd*, A too weak solution, or an insufficient amount of the solution, may allow coagulation to occur, and either cause the operation to be suspended before all the blood is injected, or endanger the patient's life. No accident has ever happened in my cases from this cause, but in one or two instances much valuable blood has thereby been lost.

4*th*, A too rapid injection of the blood may cause dangerous, and possibly even fatal consequences. This was exemplified in my most successful case—Mrs M.—in which the end of a syringeful was injected to save the blood after the pulse began to show irregularity of beat. This was followed by alarming syncope and other symptoms, which under prompt treatment rapidly disappeared. At this point I should remind you that in this disease the whole vascular system has accommodated itself to a greatly diminished volume of blood. Hence the sudden introduction of 6 or 8 oz. of blood into the contracted vascular system causes a marked alteration of pressure in the heart and lungs not without risk. The condition here is very different from that present in anæmia from rapid loss of blood,—as, *e.g.*, in surgical cases where the vessels are large and empty. In the latter cases rapid transfusion can be borne with safety because it improves the blood-pressure.

5*th*, For the purpose of rendering the operation absolutely safe, I think the operator should have a table of rules placed in the hands of his assistants, and should in each case have before operating the definite assurance that all of them have been carefully attended to.

6*th*, One of the most important lessons which I have personally deduced from my experiences is this:—In none of my cases, even where a distinct mistake has been made, has any accident leaving any permanent effect happened: nor has any other than a good result ultimately followed the transfusion in any of my nine transfusions. Hence I must conclude that, *given the requisite attention to all details, and the necessary surgical skill, the operation cannot be regarded as a dangerous one*—it can therefore be recommended with confidence in so perilous a disease when all other remedies have failed.

In making this statement I do not forget how much the success of these transfusions has depended on the consummate skill and patience of my esteemed colleague Dr John Duncan. It is a delicate operation, and that it should not be attempted rashly by any one but an expert is clear; but I doubt not we will always be able to find experts, in Edinburgh and other large cities at least, when the operation is judged necessary.

The conclusions at which I have arrived from my experience of transfusion of human blood in pernicious anæmia may be very briefly summed up as follows:—

1*st*, If all the necessary precautions are strictly adhered to the operation is perfectly safe.

2*nd*, Quite healthy blood with living blood corpuscles can be added to the diseased blood of the patient.

3*rd*, This blood exerts a beneficial influence both on the blood with which it is mixed and on the blood-forming organs, for—

(*a*.) Sooner or later the abnormal peculiarities in the forms and the exceptional varieties of the corpuscles disappear.

In Mrs G.'s and Mrs M.'s cases the corpuscles became normal in those respects very shortly after the first transfusion.

(*b*.) Sooner or later the blood corpuscles begin to increase in excess of those added by the transfusions.

4*th*, These facts are opposed to the view that an abnormal destructive activity of a disordered liver is the only or the main pathological condition in pernicious anæmia; for it is difficult, were this true, to understand how the blood corpuscles added should not soon fall victims to the destructive influence of the liver cells.

The foregoing results of transfusion rather favour, although they do not absolutely shut one up to, the conclusion that the true pathology is, as I have already said, probably somewhat like this:—

1*st*, The real condition of the blood in pernicious anæmia is a delicacy and tendency to early death of the red blood corpuscles.

2*nd*, The probable starting-point of this delicacy and feeble resistance in the blood corpuscles is some functional weakness in the blood-forming organs, which may be due to various possible causes.

3rd, The irregular-shaped, variously-sized, and otherwise abnormal blood corpuscles point to some such imperfect genesis.

4th, Consequently without any abnormally increased destructive force in the portal system and organs—it being a normal function of the liver cells to destroy the red corpuscles—a greatly increased death-rate of these delicate and short-lived corpuscles takes place.

5th, The introduction by transfusion of a considerable amount of healthy blood acts beneficially in a twofold way:—

(*a.*) By immediately improving the health and resistance of the blood (including the delicate blood corpuscles) which becomes mixed with it; and

(*b.*) Later on, by gradually operating beneficially on the blood-forming organs through which it circulates, restoring their blood-forming functions to the normal condition.

Mr President and Gentlemen, I must apologise for the great length of this paper. Long as it is, I have been obliged to omit many interesting facts contained in my reports and details, and which I propose to give at a future date in a supplementary paper.

III.—SOME DEDUCTIONS FROM A STUDY OF THE DEVELOPMENT OF THE HEART.

By G. A. Gibson, M.D., D.Sc., Assistant Physician, and A. L. Gillespie, M.D., Medical Registrar, Royal Infirmary, Edinburgh.

(*Read before the Edinburgh Medico-Chirurgical Society*, 6*th July* 1892.)

A consideration of the physical problems arising out of cases in which, on account of the retention of certain embryonic arrangements, deviations from the normal relative pressures existing in the systemic and pulmonic vessels are present during adult life, has led us to seek some means by which it might be possible to establish a basis upon which we may rest with certainty in reasoning upon such conditions. As it seems probable that in the anatomical relations of the two sides of the heart during fœtal life such a secure foundation may be obtained, we have examined the heart of the embryo in order to ascertain the anatomical conditions existing at different stages of its development. During fœtal life the pressure on both sides of the heart must be nearly equal, on account of the free communication allowed by means of the ductus arteriosus and foramen ovale; and it might, *à priori*, be expected that the walls of the ventricles on the two sides of the heart should be of approximately equal thickness.

This expectation we found to be in great part justified by our results, as will be seen in the sequel.

Before entering upon the observations which we wish to lay before the Society, it may be of use to sum up, as briefly as possible, the course of events in the development of the central vascular apparatus.

The vascular system makes its first appearance in the form of two simple lateral tubes in the anterior part of the embryo. These tubes occupy spaces which are continuous with the pleuro-peritoneum, and are composed of two layers apparently developed respectively from the mesoblast and hypoblast. Each tube is continuous in front with the cephalic mesoblast, and terminates behind in the omphalo-meseraic or vitelline veins.

These lateral tubes are developed in the part of the embryo which, on the folding downwards of the body-walls, becomes the ventral wall of the pharynx; and when this wall is completed they meet in the middle line and become fused into a single tube. This remains connected with the vitelline veins behind, and bifurcates in front, giving rise to the primitive aortæ.

At this stage in the development of the vascular apparatus the single median tube begins to pulsate rhythmically, while as yet no muscular tissue can be discerned. This is a point which cannot be denied a considerable degree of significance.

The central vascular tube, at a slightly later stage, becomes somewhat curved by bending over to the right; and at the same time its posterior extremity, connected as we have seen with the venous channels behind, assumes a position dorsal to the rest of the tube. At this period of development superficial constrictions appear upon the tube, dividing it into the venous sinus, the auricle, the ventricle, and the aortic bulb. While these changes are going on muscular fibres are for the first time seen in the substance of the vascular apparatus.

The venous sinus receives the posterior veins already mentioned, and the primitive veins from the cephalic region. It at first communicates freely with the auricle, but afterwards is guarded by venous valves.

The common auricle continues to develop behind the curved ventricular portion of the tube, and in time the right venous valve forms the Eustachian and Thebesian valves, while the left venous valve disappears.

The common ventricle, or curved ventral portion of the tube, receives the blood from the common auricle at its left end, and terminates at its right end in the aortic bulb. It contains in its early stages a fine spongy substance. A slight constriction on its outer surface marks the future separation into right and left ventricles, and a septum, composed of muscular tissue, begins to grow from below and behind, upwards and forwards. This is completed at a later stage by the development of a fibrous septum, which grows from above and before, downwards and backwards. At the same time the spongy tissue in the cavity of the ventricular portion of the apparatus begins to be gathered together in distinct columnar masses.

The common auricle is gradually raised upwards and forwards, so that the opening into the ventricular portion assumes a position over the inter-ventricular septum, which grows up, and with the assistance of flaps developed from the inner layer—the future auriculo-ventricular valves—divides the orifice into two divisions. A septum is developed in the common auricle from above and behind, downwards and forwards, in which the foramen ovale is formed. Before this inter-auricular septum is complete, the pulmonary vein is developed.

While these changes are proceeding, the aggregation of the spongy tissue of the ventricles into distinct masses goes on, and by this means the columnæ carneæ as well as the musculi papillares with their chordæ tendineæ are formed, the latter becoming attached to the flaps developed at the auriculo-ventricular orifices. The inter-ventricular septum grows up into the aortic bulb and separates it into two divisions, *i.e.*, aorta and pulmonary artery, each communicating with its respective ventricle. Folds of the lining membrane grow up at the junction of the bulb and the vessels, and by their division into segments form the semilunar valves.

To the development of the great arterial trunks it is not necessary to devote much attention. From the aortic bulb two great arterial arches spring, each running forwards, outwards, and backwards, dorsal to the primitive heart, to form the primitive aorta of its own side. The two primitive aortæ unite at an early period in the middle line about the dorsal region. To these arterial arches four other lateral pairs are in succession added, forming five arterial arches on each side. Of these arches the first and second become the external carotid artery and its branches; the third forms the internal carotid artery. The fourth, on the right side, becomes the subclavian artery, and on the left side it forms the arch of the aorta. The fifth, on the right side, develops as the right pulmonary artery, and its distal portion disappears; on the left side it forms the left pulmonary artery, and the portion beyond remains during fœtal life as the ductus arteriosus. The right descending primitive aorta entirely disappears in its anterior part; the left remains as the permanent descending aorta, and joins the posterior part of the right primitive aorta behind, to form the posterior portion of the permanent descending aorta.

From this description of the development of the heart and great vessels it may readily be understood why it is that the pressure on both sides of the heart is very similar, probably being somewhat greater in early fœtal life on the right side than on the left.

We determined to examine the hearts of the human fœtus at different ages, so as to obtain the evidence afforded by the relative thickness of the walls of the ventricles.

The method which we have followed in our investigations has been to make a series of sections through the ventricular portion of the heart of the fœtus at right angles to its axis, and measure the thickness of the walls at different points in the circumference of the ventricles, as well as at different distances from the auriculo-ventricular groove.

The following is a summary of the results:—

	Wall of Right Ventricle.	Wall of Left Ventricle.
1. Fœtus, 3½ months, . . .	1·5 mm.	1 mm.
2. Fœtus, 4 months, . . .	1·5 „	0·5 „
3. Fœtus, 6 months, . . .	4 „	3 „
4. Fœtus, full term; never breathed,	4 „	3 „
5. Fœtus, full term; never breathed,	5 „	5 „
6. Fœtus, full term; lived 24 hours,	3 „	4 „
7. Female infant, 11 months, .	2 „	5 „
8. Male infant, 22 months, . .	2 „	8 „

These figures show that the left ventricle progressively increases in thickness from the third month, while the right ventricle increases up to the hour of birth, and then rapidly diminishes; the thickness of its wall nearly two years afterwards being actually smaller than in the sixth month of fœtal life.

The accompanying Plate gives copies of life-sized photographs of the sections referred to in the above summary, and the numbers correspond to those of the text. The photographs were all obtained looking down on the sections from above, and they were placed with the anterior side above, so that the side of each to the right is the right ventricle.

From these facts we may fairly conclude that the thickness of the walls of the cardiac chambers is exactly proportional to the work which each has to do. And although an inquiry into the teachings of comparative anatomy is not within the scope of this contribution, we may add that the facts which we have laid before the Society as to the condition of the walls are in every respect supported by observations which we have made on the fœtal heart of the horse, cow, sheep, pig, dog, and cat.

The consideration of these points in vascular development is by no means a matter only of scientific interest; on the contrary, the facts which have been briefly described in the preceding pages show how different malformations are possible through arrested or perverted development, and they point to further important truths. The pulsation of the primitive vascular tube, for instance, before the growth of any muscular fibres in its substance, appears to be evidence in favour of the existence of an inherent tendency to rhythmic propulsive movements in the vascular mechanism. And as during fœtal life the blood-pressure must be nearly the same on both sides of the heart, it is undoubtedly a circumstance of real importance, that up to the time of birth the thickness of the walls of the two ventricles is nearly equal on the two sides. This fact

Fig. 1.

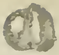


Fig. 2.

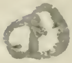


Fig. 3.

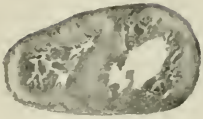


Fig. 4.

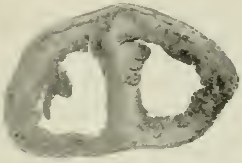


Fig. 5.

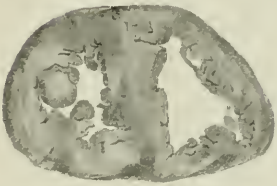


Fig. 6.

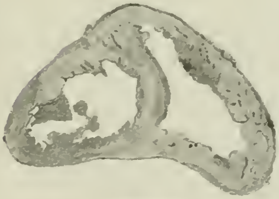


Fig. 7.

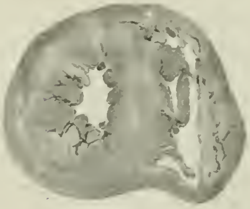
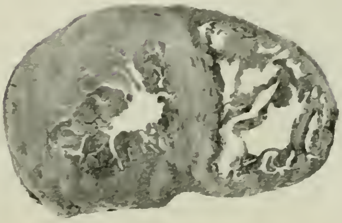


Fig. 8.



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may be taken to prove that the amount of strength developed is strictly proportional to the work that has to be done.

Such results lead to far-reaching conclusions in regard to the possibility of the heart adapting itself to widely different morbid conditions. Some further results relating to the proportional thickness of the adult ventricular walls in different diseases have been obtained, but these must form the basis of another communication at some future time.

IV.—AN UNUSUAL CAUSE OF DYSPNŒA AFTER REMOVAL OF TRACHEOTOMY TUBE.

By R. D. Clarkson, M.B., C.M., B.Sc., Resident Physician at Royal Hospital for Sick Children, Edinburgh.

A boy, aged 8 years, was admitted to Dr Carmichael's ward in the Sick Children's Hospital on January 8th, 1892, with difficult breathing, which had lasted two days. Shortly after admission he was given an emetic, and, with the vomiting, coughed up a large quantity of greenish-white membrane; but he remained as breathless as ever. Dr Beilby, therefore, performed tracheotomy. The patient stopped breathing just as the operation was completed, and artificial respiration had to be kept up for three-quarters of an hour; otherwise there was no unusual difficulty about the operation, and the patient recovered well. Three days afterwards a tube with an opening on its convexity was introduced, and for nearly an hour after its introduction the child did not breathe spontaneously. The first attempt to make him breathe through his larynx was made five days after the operation, but it was five days later before he could breathe freely with the tube corked. After he had been breathing through his larynx for eighteen hours, the tube was removed. Eight hours later he did not seem to be using his glottis much, and an attempt was made to make him do so by closing the opening in the neck with a dressing: as soon as this was done the patient became agitated, then purple, then unconscious, and finally stopped breathing. The tube was reinserted, artificial respiration performed, and in a few minutes the boy recovered.

The somewhat sudden obstruction to respiration was supposed to be due to spasm of the glottis, because the child had always been nervous, and a week after the operation some choreic movements had been noticed. A mixture of chloral hydrate and potassium bromide was prescribed, and frequent attempts made to induce the patient to breathe with his tube corked. The result of all these attempts was similar. He was quite comfortable, and laughed and shouted without hoarseness or any other difficulty for the first twelve to twenty-four hours. Then his inspiration gradually became more strident, a fit of coughing came on, he suddenly became much agitated and deeply cyanosed, and the cork had to be removed. A course of potassium iodide was tried without any apparent effect.

Dr M'Bride saw the boy five months after the operation, and reported that he could not see further into the larynx than the epiglottis, that the tonsils were enlarged, and that he believed there were adenoid growths in the pharynx. He suggested that the removal of tonsils and adenoids might improve matters.

A few days later, on the 18th of June, Mr Bell examined the trachea under chloroform. When the tube was removed he found a mass of granulation tissue flapping in and out of the wound as the patient breathed. It was about as large as a pea, and was adherent to the upper angle of the wound in the trachea. Mr Bell scraped it away with a director and stopped the bleeding, which was pretty free, by putting in another tube. He then scraped the back wall of the pharynx; but he left the tonsils alone, because they were only slightly larger than normal. The patient had a very little pain for a few hours after the operation. Next day the tube was corked, and patient breathed without trouble for two days. Then the tube was removed, and in four days the aperture was air-tight. Two days later he was dismissed well. He was kept under observation for six weeks more, and remained perfectly healthy during that time.

An interesting fact about the child was only discovered in the last days of his stay in Hospital. He had not been to school for six months, and he seemed to have forgotten most of what he had learned, but he thought he could write the figures from 1 to 9. He wrote with his left hand, beginning at the right side of the paper and going towards the left, and the figures that he made were mirror images of our ordinary symbols. His attempt to write letters resulted only in illegible scrawls, unless he had a copy before him, when he wrote as before from right to left, but made the individual letters in the ordinary way.

For permission to report this case I am indebted to Dr Carmichael. The notes as far as May 1st were made by Dr J. H. Beilby, who was then house physician.

V.—STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY.

VI. On a Case-taking Scheme for Fœtal Diseases and Deformities.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Diseases of Infancy and Childhood, Minto House, and on Midwifery and Diseases of Women, Medical College for Women, Edinburgh; Physician for Diseases of Women and Practical Obstetrics, Western Dispensary, Edinburgh; and Secretary to the Edinburgh Obstetrical Society.

(*Read before the Edinburgh Obstetrical Society*, 11*th May* 1892.)

During the investigation of certain examples of fœtal disease and deformity, I constructed, for my own use, the following scheme, in order that I might be able systematically to record all the important clinical details and pathological characters of each case. It is, in my estimation, very far removed from an ideal scheme; but since I have been unable to find in any work upon fœtal maladies any case-taking method described, I have ventured to bring this one forward in the hope that it may prove of some service to other workers in this field of research.

I shall first give the scheme, and thereafter make some remarks upon its component parts.

Case-taking Scheme for the Investigation of Fœtal Diseases.

I. Clinical History and Symptomatology.
  A. Maternal.
    1. General.
      a. Age, development, weight, and height.
      b. Habits and environment.
      c. Constitution.
      d. Diseases.
      e. Deformities.
    2. Sexual.
      a. Menstruation: type, habit, etc.
      b. Marriage: early or late, etc.
      c. Morbid states of uterus and annexa.
      d. Pregnancies.
        (1.) Past: number, character, etc.
        (2.) Present: character, plural or single, etc.
          Symptoms in Pregnancy—
            α. Maternal: gastric, renal, nervous, etc.
            β. Fœtal: movements, heart-beat, etc.
      c. Labours and puerperia.
        (1.) Past.
        (2.) Present.
      (*f.* Later sexual history.)
  B. Paternal.
    Health, constitution, habits, etc.
  C. Infantile: when the infant is born alive and survives for a longer or shorter time; or when there are twins, one of which lives.
  D. Family clinical history—heredity.

II. Morbid Anatomy.
  A. Of fœtus.
    1. External appearances.
    2. Internal appearances.
    (3. Sectional appearances.)
    4. Microscopic appearances.
    5. Bacteriological investigations.
    6. Chemical characters of fluids, etc.

B. Of fœtal annexa.
    1. Placenta.
    2. Umbilical cord.
    3. Membranes.
        (1.) Chorion.
        (2.) Amnion.
    4. Liquor amnii.
C. Of mother (if death follow confinement).

It will be seen that the scheme is divided into two parts, the first of which deals with all that relates to the clinical history and symptomatology, whilst the second is concerned with the investigation of the morbid anatomy of the products of conception. With regard to the first of these lines of research, it must be admitted that occasionally perfectly healthy mothers give birth to diseased or deformed fœtuses, and that sometimes normal infants are born to mothers suffering from serious illnesses. In such cases the value of the investigation of the clinical history of the parent may have no very evident value, but the inquiry is not on that account to be abandoned; for so little is yet definitely known with regard to the effect of disease in the parents upon the fœtus, and of fœtal maladies upon the health of the mother, that in each instance a searching examination ought to be made of the medical history of the parents and of the obstetrical record of the mother. It is probable that if this examination were carefully made, facts of the greatest interest would in nearly every case be forthcoming.

With regard to the second line of inquiry, whilst it is not sometimes possible to make a dissection of the fœtus (for the diseased or deformed infant is happily not invariably still-born or dead-born), it is always open to us to investigate the naked-eye and microscopic characters of the placenta, membranes, and cord. When, however, the child is born dead, or dies soon afterwards, the systematic examination of its tissues and organs ought not to be omitted. Further, when the mother unfortunately also succumbs to the effects of the labour, or to other causes, a post-mortem examination of her body is a means of investigation which may throw great light upon the genesis of the fœtal malady.

Some of the lines of inquiry mentioned in the case-taking scheme may now be considered *seriatim.*

The investigation of the clinical history of the mother ought, in the first place, to deal with certain purely medical questions. The bearing of these questions upon fœtal morbid processes may not be very evident, but it is of importance that in such an intricate subject all the available information should be secured. Reference is now made to the medical conditions of the mother existing prior to and apart from her sexual and obstetrical history. These conditions, if they have been active at all, may have influenced the unimpregnated ova in the ovary, and through them when fecundated the fœtuses developed from them; or they may have so altered the general economy of the maternal organism as to make it impossible for a healthy embryo to be produced and brought normally to maturity. It must at the same time be admitted that it is nearly impossible to state whether in a given case the morbid tendency pre-existed in the ovum before impregnation, or was impressed upon it at the time of conception or during pregnancy.

Among the questions to be inquired into are the mother's age, height, weight, and general development, for it is probable that the ova of very young or of very old mothers may be inherently less strong and healthy than those of women in their prime, and that the inferior or superior state of development of the maternal organism may influence the size, weight, and health of the fœtuses which she produces. Hecker, Duncan, and Irme have shown, at any rate, that the weight of the infant at birth increases up to a certain point with the increase in age of the mother, and that there are certain years in her life when the likelihood of a heavy child's being born is very great. The height, weight, etc., of the mother ought to be carefully noted in cases where dwarf or giant children are produced.

It is very probable that the condition in life and the habits of the mother profoundly influence the health and development of the ovum and fœtus. It has, at any rate, been stated that fœtal diseases are rarely observed in the case of healthy, robust women living in comfort, whilst they are more frequent in mothers supplied with insufficient or poor nourishment, exhausted by excessive fatigue, or crushed with sorrow, misery, or anxiety; and it is admitted that the malign influence upon the fœtus of the alcoholic and of other vicious habits of the mother is undoubted, although its *modus operandi* may not be understood.

The constitution and temperament of the mother may also affect the condition of the fœtus. A highly-strung nervous system or a hysterical temperament I have sometimes noted in conjunction with the production of fœtal deformities.

The maternal medical history of the diseases of infancy, childhood, and adult life ought to be inquired into. The occurrence of rickets, convulsions, fevers, etc., in early life, and the presence of syphilis, anæmia, hepatic and renal disease, diabetes, lead-poisoning, etc., in later life are factors whose influence upon the fœtus in a direct way, or through its annexa indirectly, must be taken into account.

Maternal deformities also ought to be noted, for such are sometimes directly transmitted,as in certain case of supernumerary digits, harelip, etc. That acquired deformities may be hereditary is very doubtful—their transmission is denied by Weissmann and others —but their presence should be noted in order that statistics may be obtained.

The investigation of the sexual and obstetrical history of the mother often yields more directly valuable indications with regard to the causes of ante-natal disease than does that of the purely medical record. There is a connexion between the whole of the mother's organism and that of the unborn infant, but there is a much closer relationship between the uterus and the blood circulating in it and its contained fœtus. The following matters should, therefore, be most carefully inquired into.

The mother's menstrual habit and type ought to be ascertained, and any abnormal conditions, such as excessive or diminished flow, pain, etc., noted, for from such information something may be learnt of the state of the genital organs and their fitness for the discharge of the reproductive functions.

It is difficult to obtain satisfactory statistics bearing upon the question whether the married or single condition of the mother influences the health of the fœtus; but when it is borne in mind that a woman pregnant of an illegitimate child must of necessity be placed under less advantageous circumstances than her happier married sister, it seems likely that the fœtus in utero may suffer therefrom. The question of the effect of consanguinity is a moot point; but it is not to be neglected on that account. The age at which the married state was entered into is also worthy of note.

Grave diseases and anomalies of the uterus, ovaries, and tubes usually render the patient sterile, and this means either that these organs are unable to perform the functions necessary for the occurrence of conception and for the progress of fœtal development, or that the ova in such cases are destroyed or rendered incapable of healthy fecundation. In less serious maladies affecting the maternal genital organs, conception and some degree of development may take place, but from inherent morbidity in the ovum, or from pathological conditions of the uterus and annexa, gestation is brought to an untimely end in miscarriage or premature labour. It may be conceded that a diseased uterine mucosa cannot grow a healthy placenta, and in this way a morbid state of the uterine contents may be brought about. Maladies of the mother's pelvic viscera ought then to be investigated.

If the mother be a multipara, the history of the details of her previous pregnancies must be gone into. Such matters as the number of gestations, the rapidity with which they followed each other, the occurrence of abortion or premature labour, and the history of abnormal symptoms during their course, should be investigated. For fœtal diseases are apt to repeat themselves in successive pregnancies, and the history of the past may often serve to elucidate the present condition. In a recent paper on General Fœtal Dropsy I pointed out how a woman gave birth to three dropsical infants in succession, and the same thing has been noted in other ante-natal diseases and anomalies. The occurrence of plural conception is of peculiar interest, and should always be inquired into.

The pregnancy whose product is the diseased or malformed fœtus must be especially carefully investigated. Every detail in which it differed from the normal should be noted. First, the condition of the mother during the gestation is of vital importance. She may have suffered from an infectious fever, and this may explain the conditions found in the infant at birth, or may supply the cause of abortion. The residence of the parent in a locality where, for example, smallpox is prevalent, may be sufficient to cause that disease in the fœtus, the mother herself enjoying the immunity which has been conferred upon her by vaccination or by a previous attack. Any other affection that may have occurred during pregnancy, such as renal, hepatic, gastric, pulmonary, or mental disorder, should be inquired into, as it may serve to throw light upon the abnormal intra-uterine conditions. The connexion between albuminuria and placental disease is a case in point. The history of maternal impressions also ought to be critically scrutinized. Again, the occurrence of traumatism during pregnancy may serve to explain some cases of fœtal disease and death, and the administration of certain drugs to the mother in the course of her gestation may be the exciting cause of tissue-changes in the fœtus. Second, the physician should note the history which he may obtain of any deviations from the normal in the symptomatology of the pregnancy. The character of the fœtal movements, the rate of the fœtal heart, and the evidence of a large or small quantity of liquor amnii, are points which should be inquired into. Sometimes a distinct history of the signs of fœtal death may be forthcoming,—such as cessation of fœtal movements, stoppage of heart-beats, feeling of weight and coldness in the lower part of the abdomen, retrogressive changes in uterus and mammary glands, and peculiar sensations experienced by the mother. At other times weakness of the fœtal movements has been present, and it has been found that a weakly infant or one with partial or entire absence of the limbs has been born. Sometimes the movements of the infant in utero have been violent and tumultuous, and fœtal shiverings from malaria or convulsions from brain disease have from this sign been diagnosed. Irregularity in the rate of growth of the uterine tumour has occasionally been noted, and has led to the diagnosis of hydatid degeneration of the chorion, hydramnios, etc. It is only by the careful recording of such circumstances that we can ever hope to build up a system of fœtal symptomatology.

From the history of past confinements information may often be gathered which is of value in connexion with the understanding of fœtal disease. The records of tedious, instrumental, or complex labours, of the birth of still-born or dead infants, and of abnormal phenomena in the third stage, ought to be carefully scrutinized.

It is sometimes found that fœtal morbid states have a tendency to be reproduced in successive pregnancies, and from a history of past confinements one is often able to trace such a repetition of diseased manifestations, varying frequently in intensity. This is especially true of syphilis. So marked is this tendency, that it has been customary to speak of habitual abortion, habitual premature labour, and habitual fœtal death, although it is doubtful whether the idea of *habit* suggested by the name is a correct one.

Of course, all the clinical details of the confinement which terminates in the birth of a morbid fœtus are of immense importance. The infant may be alive and healthy before labour sets in, and may yet die, or suffer injuries leading to disease during the process of birth.

Again, certain pre-existing fœtal maladies, such as ascites, congenital tumour growths, hydrocephalus, some monstrosities, and the like, may seriously interfere with the process of parturition,—so much so as sometimes to necessitate operative interference, entailing the death of the infant.

The history of the confinement, therefore, is important, and so also is that of the puerperium; for it may be found that certain abnormal conditions—*e.g.*, albuminuria, dropsy, etc.—found during the pregnancy rapidly disappear after the birth of the child, and were perhaps due to the fœtal disease or the distension of the uterus during gestation.

The history of the pregnancies and confinements which follow the birth of a deformed or diseased infant is a matter with regard to which little information is forthcoming in the great majority of recorded cases. The after-history of all such cases ought, however, to be followed up, and is of great interest when narrated. When a woman gives birth to an abnormal fœtus, means ought to be taken to prevent the recurrence of such an event, and the success or failure of such means will be manifested sometimes by the history of the succeeding gestations. In this way it is possible to look for an augmentation in number of the therapeutic measures which are of value in intra-uterine disease.

In the great majority of the recorded cases of fœtal disease nothing is stated with regard to the health of the father. This is unfortunate, for it seems to be certain that paternal morbid states, acting through the spermatozoon, are potent in inducing disease and deformity in the fœtus. I have myself seen some cases in which I believed that I was able to trace to the father the origin of the ante-natal malady of the infant. The age of the father, his degree of development, his habits, especially the alcoholic, and certain diseases, such as syphilis, nephritis, diabetes, cancer, tuberculosis, lead poisoning, mental disorder, etc., from which he may suffer, ought to be noted in all cases of intra-uterine disease. It is impossible yet to foretell how far such inquiries may yield valuable results.

It is almost unnecessary to say, that when the morbid infant survives its birth all the details of its symptoms and a record of its appearances should be noted. Certain malformations only lead to injurious and evident results after birth. The imperforate condition of the anus, absence of the common bile-duct, congenital heart disease, the existence of hare-lip and cleft-palate, etc., are cases in point. Further, should twins be born, one healthy, the other diseased, deformed, or dead, the clinical history of the survivor may be of some interest.

Certain malformations and some fœtal and congenital diseases are well known to be hereditary, and it will be well in all cases to inquire into the medical history of grandparents, uncles and aunts, etc.; for an inherent morbid tendency may not manifest itself in each generation, or, indeed, in each individual of the generation. The study of the phenomenon known as atavism has already thrown light upon certain congenital anomalies, and results of great value are to be looked for in this direction. In the case of some diseases—*e.g.*, hæmophilia—it would seem as if the morbid tendency remained latent in the female until the supervention of pregnancy, and that then it appeared, but only in her fœtus if a male, and not in the other parts of the mother's organism. "It would be an advantage," says Cooke Hirst, "to begin the observation of the fœtus as well as its treatment a hundred years before its procreation, in a study of antecedent generations" (*American System of Diseases of Children*, vol. i. p. 235, 1889).

In connexion with the investigation of the clinical history of the parents in cases of fœtal disease, it must not be concluded that because the malady of the mother is not of the same type as that of the fœtus they are independent of each other. It would seem that one disease in the mother may give rise to another in her offspring. It has, for example, been held by Sänger that maternal nephritis may cause leukæmia in the fœtus.

I need say nothing with regard to the second part of the case-taking scheme—that dealing with the morbid anatomy of the fœtus and its annexa—for that has already been treated of pretty fully in a previous communication ("The Investigation of Fœtal Disease," *Edin. Med. Journal*, March 1892).

VI.—A NOTE ON THE USE OF THE AXIS-TRACTION FORCEPS IN THE HIGH AND LOW OPERATION.

By Michael Dewar, M.D., C.M.

(*Read before the Obstetrical Society of Edinburgh*, 13*th April* 1892.)

A consideration of the details and results of the following cases of the high operation in contracted pelves with the axis-traction forceps, and a comparison of the results in my pre-axis-traction days with these, have induced me to lay before the Society a few notes on their use. These cases are the first in which I have had the opportunity of delivering with those instruments above the brim since I commenced to use them. Formerly I had been in the habit of using the ordinary Simpson long forceps in such cases, and when I failed to draw the head through the brim with them, I was obliged to resort to version, seeing that in these cases I could get no skilled assistance, being, when in Forfarshire, often from fifteen to twenty miles from home. This latter operation, of course, had to be as a rule performed under not very favourable circumstances, and the results, in my hands at least, were not very encouraging as regards the fœtus. Of twelve cases of version in my first thousand cases, I had six still-births, exactly 50 per cent.; while of my long forceps cases, which ended as such, there were 6 per cent. of fœtal deaths. I am of opinion now that, judging from my new experience, one should be able to deliver with the axis-traction forceps a greater porportion of living children in rickety pelves, and thus avoid version with its greater mortality as regards the child, and the greater risk to the mother of puerperal troubles.

CASE I.—Mrs B., aged 38, a short, deformed, bow-legged secundipara with a flat pelvis, sent for me at 10.30 P.M. on 1st November last. She had been in labour for some hours. On making a p.v. examination, the os was found well dilated, the membranes intact, the head presenting; could just reach the head, but could not make out the position. The pains were strong and frequent; after some time the membranes ruptured spontaneously, when the head was found lying above the brim, there being no advance with the pains. By pushing the fingers well up, and steadying the uterus with the left hand, I could define the sagittal suture running upwards and forwards to the posterior fontanelle, indicating a R.O.A. position. As no progress was being made, I administered chloroform and attempted to apply the axis-traction forceps, but failed completely to get them locked, due to my want of skill in manipulating the rods. After several attempts without success, I withdrew the forceps and removed the rods, thus converting them into simple long forceps. On reintroducing them, they locked at once, but on making traction with all my strength, I could make no advance. I then allowed the forceps to remain in position and sent for my friend Dr Proudfoot to take charge of the chloroform, and induce deeper anæsthesia. I was then able to draw the head down into the pelvic cavity, and with a little care complete delivery without any further mishap, though when the head was passing through the vulva the perineum was in great danger for a time. By keeping back the head, however, so as to allow the perineum time to stretch, it was saved. There was a caput succedaneum on the left parietal region. The child, a male, was still-born. The mother recovered in the usual time, without a bad symptom.

Case II.—Mrs K., aged 44, a spare, sallow, rickety primipara, sent for me on 7th November last at 10 a.m. She had had labour pains since the night before. On making the usual examination I found a slight mucous discharge, the os about the size of a crown piece, and the membranes entire. The head, which was the presenting part, could only be reached with difficulty. After waiting for a short time without much progress, I ruptured the membranes, and after pushing the fingers well up behind the pubic arch, made out the position to be L.O.A. in a contracted conjugate. I administered a little chloroform, and with my finger dilated the os sufficiently, and putting her more deeply under the anæsthetic, applied the axis-traction forceps, which locked at once, the rods coming together nicely. With not a little traction the head was dragged through the brim. Rotation into the antero-posterior diameter of the pelvis took place, after which I had simply to follow the movements of the application handles till the head was completely born. The perineum was preserved intact. The child, a female, commenced to cry lustily, and the mother made an excellent recovery without a moment's anxiety.

Case III.—Mrs Q., aged 35, a scrofulous, thick set, squat multipara. She had previously two female births without any instrumental aid, and two male births,—the first still-born, delivered by forceps, the second seven years ago, delivered after great difficulty alive by long forceps. I was sent for at 10 a.m. on 28th December last, and learned that she had been in labour since 3 a.m. On making a p.v. examination I found a slight muco-sanguineous discharge, the water having escaped, and the os about the size of a crown. The head was situated above the brim, and the sagittal suture could be traced upwards and backwards to the posterior fontanelle. The anterior fontanelle could not be reached, and therefore evidently a R.O.P. position above the brim. In a short time the os was sufficiently dilated to allow the introduction of the axis-traction forceps under chloroform, after the bladder had been emptied by catheter. The bowels had been relieved by castor oil the previous evening. The instruments were carefully introduced,—the lower blade over the posterior portion of the right parietal bone, and the upper over the left side of the head in the region of the ear (as shown by the pressure marks after birth). Traction was made moderately at first, gradually increasing till I was pulling with all my might, when suddenly the blades slipped off the head without moving the head in the slightest. I reapplied the forceps in much the same way, with a similar result. For the third time I applied them, taking care to get them over the occipito-frontal poles as nearly as possible. I had considerable difficulty in placing the upper blade over what I considered the proper place, the blade always being inclined to slip backwards to the side of the head. At last I succeeded, and when the instruments were locked, and the occipito-frontal diameter reduced, the head was with only a very moderate amount of traction drawn through the brim. After this I had very little to do except to reapply the forceps in the biparietal diameter, watch and follow the movements of the application handles, as in the second case. The head rotated into R.O.A., and was delivered in the usual way. When restitution took place, the face turned downwards to left thigh, and the left shoulder appeared under the pubic arch. The child, a male, was still-born (the mother had not felt movement for more than two days). The lower blade was over the occiput close to its junction with the right parietal, while the upper was over the left eye. The mother made a good recovery.

Case IV.—Mrs M., a small, very much undersized multipara, sent for me at 5 p.m. on 25th February 1892. Her previous obstetric history is as follows: the first child, a boy, was born at the seventh month, delivered at the brim by long forceps, alive; the second, a girl, after failure with the long forceps, was delivered by version with great difficulty, alive; the third, a miscarriage at the fourth month.

On making my visit on this, the fourth pregnancy, I found that she had been in labour since early morning. The water had escaped, the os was about the size of half-a-crown, and the head presenting, but high at brim. On calling again at 8 o'clock the pains were found to be more frequent but feeble, and the os almost fully dilated. The head, which had made no advance, was occupying the R.O.A. position. Very shortly afterwards I administered chloroform and applied the axis-traction forceps; and remembering my difficulties on the previous occasions, I placed the first blade over the right occiput, and the second blade over the left forehead above the left orbit. With moderate traction the head was drawn through the brim with comparative ease. Rotation did not take place till the head was well on to the perineum, but the latter being very distensile, I did not in this case remove the instruments till after the occiput had slipped under the pubic arch. The delivery was then completed in the usual way. The child was very lively, and the mother made an excellent recovery.

The first thought that will occur to every one is, that my success with the axis-traction forceps is quite as bad as the results of the operation of version after failure with the long forceps. But this is not so. In the first case, I hold that had it not been for my bungling with the traction rods and the long time taken to deliver the child, that child would in all probability have been born alive. The second case ended favourably. The third case could not have terminated in any other way, as the child had been dead for some days. The fourth case also ended favourably.

According to my experience, the chief difficulty to one using the axis-traction forceps for the first time in the high operation is the apparently hopeless task of getting the rods to come together properly, but when one has surmounted that difficulty it is all plain sailing. There is no difficulty whatever with the rods when applying the instruments to the head in the pelvic cavity or at the outlet. With these instruments properly applied and used, one should be able to deliver cases which without them would have to be delivered by version or by perforation. This leads me to a short consideration of the accident which befell me in the third case (the first time in my experience), when the forceps slipped off the head twice, and where on my applying the blade carefully over the occipito-frontal diameter of the head I was able to extract the head with comparative ease. The only way in which I can account for the slipping is, that the blades having been placed too far back in the biparietal diameter, the head was squeezed together in that axis, and, as a consequence, lengthening of the occipito-frontal diameter took place. The occiput and forehead of the child necessarily rested on the brim of the pelvis, rendering its extraction next to impossible in a contracted pelvis, and when the very powerful traction was made on the bar, the blades were simply pulled off the head backwards. The head could not possibly pass through between the points of the blades. By applying the blades in the occipito-frontal diameter, or as near to it as possible, that diameter was very much reduced, the head becoming more rounded, and extraction was made very much easier.

A few days after the date of this third delivery I had the opportunity of reading the able paper on the axis-traction forceps by Dr Milne Murray, in which, at page 23, he describes the delivery of a child in the transverse axis by this same method. The comparative ease with which my fourth case was delivered still further illustrates the advantage to be gained by the use of these instruments. It would be well, therefore, to bear in mind that in cases at and above the brim, when the necessary amount of flexion has not taken place, one may by grasping the head in the occipito-frontal diameter, and thus shortening that diameter, be able to extract a living child easily with the axis-traction forceps, which under other circumstances might have to be delivered by version, with greater risk to its viability, or by perforation.

As regards delivery of the head in the pelvis and at the outlet, there cannot be the shadow of a doubt as to the immense advantage of the axis-traction forceps over the ordinary forceps, in administering at least to the comfort of the medical man. The ease and pleasure with which he can sit down at the bedside after the instruments are introduced and locked, and with one hand on the cross-bar follow the movements of the application handles, are in marked contrast to the awkward position one has to assume with the ordinary forceps. I do not think, however, that, in the matter of saving the perineum, the axis-traction forceps have any great advantage over the ordinary forceps, for I have delivered a fairly large number of all kinds of cases, and for various reasons with medium and short forceps, without rupturing the perineum beyond the fourchette, which goes in all first cases.

There is just one other point to which I might allude. Dr Murray in his paper, in referring to the gliding movement of the occiput over or under the pubic arch during the process of extension at the outlet, mentions that this movement is overlooked or ignored by many teachers, and therefore the process of extension is improperly taught. To me this seems incredible. I certainly went into practice under the belief that the occiput as a fixed point turned round the pubic arch as on a pivot. It was not very long, however, before I observed that this was wrong. The gliding movement may be seen by everyone who cares to look. Nature, if she can help it at all, will never allow the occipito-mental diameter to become engaged at the vulva. Repeatedly for the last sixteen years in cases of stiff perineum I have held back the frontal pole so as to allow the occipital to get well forward under the pubic arch. There is no doubt that if the movement of extension were better understood, and a little judicious care taken at the birth, there would be fewer ruptured perinea.

The chief points, therefore, I would wish to emphasize are,—

1. The comparative ease with which one should be able with the axis-traction forceps to terminate favourably cases in which the head is above or impacted at the brim in flat pelves, and thus avoid the more serious operation of version, or even perforation. I would venture to affirm, that by a careful and intelligent use of these instruments any ordinary sized head may be dragged through a conjugate whose diameter is as low as three inches, without injury to the pelvis or to the child.

2. In the low operation, the ease and precision with which you can follow the movements of the head as indicated by the movements of the application handles, the avoidance of the awkward positions necessitated by the use of the ordinary forceps, thereby contributing to the comfort and the dignity of the obstetrician. Though my results with the old instruments *in saving the perineum* are quite as good as they ever can be with the axis-traction forceps, yet there can be no doubt as to the incomparable superiority of the latter over any other forceps which have been put into the obstetrician's hands.

VII.—ELECTRO-DIAGNOSIS BY MEANS OF THE URINE.

By Dawson Turner, B.A., M.D., F.R.C.P.Edin., M.R.C.P. London ; Physician to the Livingstone Memorial Dispensary ; Lecturer on Medical Electricity at Surgeons' Hall.

(*Read before the Edinburgh Medico-Chirurgical Society, 6th July* 1892.)

A preliminary account of this research was laid before the Royal Society, Edinburgh, in December last. The present paper, based upon a more extended series of experiments, is a further contribution to the same subject.

The object of the inquiry was to ascertain the electrical resistances of various kinds of urine both in a state of health and disease. The measurements were made by means of a Wheatstone's bridge with alternating currents and a telephone, according to Kohlrausch's method, and at a temperature of 65° Fahrenheit. The resistance could also be estimated, though less accurately, by the current from a few Daniel cells, a galvanometer, and an application of Ohm's law. I made some seventy experiments by this method. It would appear from the observations, some 500 in number, that the specific resistance of a normal urine amounts to about 45 ohms, and that it varies as a rule inversely with the specific gravity. The latter is a measure of the amount of solids in solution, and particularly of the urea. It might be supposed, then, that the resistance depends also mainly upon the amount of urea; this, however, is not the case. A number of experiments were made with artificial solutions of urea, sodium chloride, phosphates, sugar, etc., in distilled water (see Tables 1, 2, 3, 4, 5), and from these it is clearly apparent that the electrical resistance depends almost wholly upon the salts, chlorides, phosphates, sulphates, etc., and that it is only when these are absent or diminished that the influence of the urea makes itself felt. The resistance is, therefore, a measure of the chemically active substances in urine, of the salts, and very much less of the inert urea. This gives us a simple and rapid method of estimating the constitution of a urine as regards its salts, while the specific gravity, in the absence of sugar, is a guide to its urea. In a normal urine, as already stated, these go more or less inversely together; given the specific gravity and the resistance can be estimated, and given the resistance and the specific gravity can be calculated.

In diseased conditions there are certain exceptions to this rule,—"That the resistance varies inversely with the specific gravity," which can be arranged accordingly as they occur in acute or chronic diseases. Excluding acute infectious diseases and local surgical affections, the two most prominent exceptions are,—amongst the former, acute croupous pneumonia; amongst the latter, diabetes mellitus (Table 6).

That the urine of a case of pneumonia should offer a higher electrical resistance than would be predicated from its specific gravity is easily understood, when the great diminution of the chlorides in the urine of a case of this disease is remembered; but the increased resistance of a diabetic urine affords a question of a more interesting nature. In this disease the specific gravity of the urine is high, and the electrical resistance offered by it is also high, and sometimes very high. Thus the specific gravity may be considerably above 1030, and the resistance at the same time as much as 150 ohms, while the resistance of an ordinary urine of a specific gravity of 1030 would probably be below 40 ohms (see Table 6).

Upon what does this increased resistance depend? to a diminution in the salts, or to the presence of the sugar? Almost wholly to the former. The tables Nos. 2 and 4 of experiments with artificial solutions show us that a 1 per cent. solution of sodium chloride has a resistance of 59·5 ohms, and that the addition of 10 per cent. of grape sugar only raises the resistance to 68 ohms; a 2 per cent. solution of sodium chloride has a resistance of 29·25 ohms, the addition of 20 per cent. of sugar raises it to 51 ohms, and of 30 per cent. of sugar to 63·75 ohms. With smaller percentages of sugar there may be scarcely any effect (Table 5).

It cannot, therefore, be doubted that the sugar, probably hindering diffusion by its viscosity, does to a slight extent raise the resistance of a saline solution. (It will lower the resistance of distilled water when by itself.) But by far the greater part of the increased resistance of a diabetic urine is due to the relatively great diminution in the salts, and it is to the merit of the electrical testing that this is brought so prominently forward. It will be found further that this resistance usually diminishes with the amount of sugar passed, and that it may be utilized as a test of the patient's progress. Whenever we find a high specific gravity together with a high electrical resistance (above 80 ohms specific resistance), we may suspect the presence of sugar. The specific gravity is raised by the sugar, and the resistance is increased by the diminution of the salts (Table 6).

In acute and chronic Bright's disease the resistance is high, also usually in chronic bronchitis, phthisis, mitral disease, and anæmia, particularly pernicious anæmia. The effect of diet has to be considered. Copious draughts of water increase the resistance. Taking much salted food diminishes it, etc. The urine passed in the early A.M., if a late dinner or supper is eaten, commonly has a relatively low resistance. Some of the principal tables are appended. No. 1 exhibits how small the effect of urea is compared with that of sodium chloride, Nos. 2, 3, and 4.

TABLES OF THE ELECTRICAL RESISTANCES OF ARTIFICAL URINES.

1. *Urea.*

Strength.	Specific Resistance in Ohms.
3 per cent.	382·5
2 „	569·5
1 „	977·5
0·5 „	1785

2. *Sodium Chloride.*

Strength.	Specific Resistance in Ohms.
2 „	29·25
1 „	59·5
0·75 „	79·9
0·5 „	110·5

3. *Urea and Sodium Chloride.*

Urea.	Trace.	
3 per cent.	1 per cent.	55·25
2 „	1 „	57·8
1 „	1 „	57·8

4. *Grape Sugar and Sodium Chloride.*

Trace.	Sugar.	
1 per cent.	10 per cent.	68
2 „	20 „	51
2 „	30 „	63·75

5. *Urea and Sodium Chloride and Grape Sugar.*

Urea.	Trace.	Sugar.	Specific Resistance in Ohms.
2 per cent.	1 per cent.	8 per cent.	68
2 „	1 „	4 „	59·5
2 „	1 „	2 „	59·5

6. TABLE OF SPECIFIC ELECTRICAL RESISTANCES IN DIABETIC AND OTHER URINES.

Number.	Disease.	Sp. gr.	Reaction.	Temp.	Urea, grs. per oz.	Albumen.	Sugar, grs. per oz.	Specific Resistance. Ohms.
1	...	1026	Acid	65°	11	...	...	31·45
2	...	1024½	Acid	„	11·7	...	...	31·45
3	...	1027	Acid	„	10·29	...	...	33·15
4	...	1027	Neut.	„	12·16	...	...	36·55
5	...	1027	Acid	„	13·1	...	...	38·49
6	...	1017	Neut.	„	7·4	...	...	43·86
7	...	1012	Acid	„	4·21	...	...	62·9
8	...	1009	Acid	„	5·85	...	...	73·9
9	...	1010	Acid	„	1·5	...	...	119
10	Exoph. goitre	1005	Acid	„	1·4	...	...	153
11	Diabet. mell.	1034	Acid	„	4·68	...	25	156·4
12	Diabet. mell.	1034	Acid	„	6·08	...	27	139·4
13	Diabet. mell.	1034½	Acid	„	5·6	...	30	131·75
14	Diabet. mell.	1034	Acid	„	6·08	...	27	129·2
15	Diabet. mell.	1040	Acid	„	8·1	...	28	124·44
16	Diabet. mell.	1025	Acid	„	6·08	Trace	14	91·8
17	Diabet. mell.	1036	Acid	„	13·1	...	17	54·4
18	Artificial diabetes.*	1040	Acid	„	10·76	...	30	37·4

* 30 grs. of grape sugar per oz. added to normal urine.

By this means, then, we are enabled to make an immediate rough estimation of the constitution of a urine, and particularly of its salts, chlorides, phosphates, sulphates, etc.,—a result which could only otherwise be arrived at by a tedious chemical analysis. The specific gravity of a urine depends (in the absence of sugar) mainly upon the urea; the electrical resistance upon the salts; by combining these we can at once form a fair idea of a urine's constitution, and of the efficiency of the kidneys. For illustrations I append the resistances of a urine of a patient, J. B., suffering from subacute Bright's disease.

ELECTRICAL RESISTANCE OF J. B.'S URINE (SUBACUTE BRIGHT).

Date.	Sp. gr.	Urea, grs. per oz.	Albumen, etc.	Specific Resistance.
Dec. 8	1011	4	Blood	114·75
„ 11	1012	4·68	„	106·25
Jan. 9	1013	4·68	Albumen	89·2
„ 20	1011	3·6	Blood	93·5
„ 30	1015	3·74	„	76·5
Feb. 11	1010	3·04	„ (less)	73·1
„ 15	1014	4	„	61·2
„ 23	1015	4·68	„	59·5
March 5	1016	5·6	„	61·2
„ 12	1017	4·68	„	74·8
„ 24	1020	9	Albumen	63·75
May 28	1024	8·19	„ (less)	42·5

When first seen he had been ill about a fortnight, was confined to bed, and had the ordinary symptoms of acute Bright, with the addition of severe abdominal pain. Upon being placed upon suitable diet and treatment he began slowly to amend, but had two relapses. The blood and albumen in the urine gradually became less marked, but traces of the former persisted until March 12. The patient was kept on milk diet until March 15. He has now been at work for two months, and considers himself to be quite well. His urine, however, still contains some albumen. It will be noticed that the resistance fell before the specific gravity or urea had much altered; it was, in my opinion, much the more trustworthy guide. Such illustrations could be multiplied; I will add one other, which is interesting from the circumstances under which the improvement occurred. A patient, L—— (under Dr Affleck's care in the Edinburgh Royal Infirmary), suffering from pernicious anæmia and growing worse, had 5 oz. of blood transfused on February 16. After this he steadily improved. The resistances taken a month before, just before, just after, and some time after, are very instructive.

CASE OF L—— (PERNICIOUS ANÆMIA).

Date.	Sp. gr.	Urea, grs. per oz.	Albumen.	Specific Resistance.
Jan. 16	1017	9·36	...	68
Feb. 11	1015	6·31	...	78·2
„ 16*	1014	7·7	...	115·6
„ 16†	1014	6·5	Blood	115·6
„ 17	1012	6·08	...	114·75
March 1	1020	7·02	...	51
„ 12	1019	7	...	44·2

* Before transfusion. † After transfusion.

It is quite obvious that in this case the resistance best reflected the patient's condition,—steadily increasing as he grew worse, and diminishing as he grew better. Thus it rose before transfusion from 68 to 115·6 ohms, and it fell after transfusion from 115·6 to 44·2 ohms. It has from many other observations appeared to me, that so far as the condition of the urine reflects a patient's condition, one of the best gauges of it is the electrical resistance; and more than that, even in other conditions, when the kidneys were supposed to be quite unaffected, as in the case of pernicious anæmia, the electrical resistance will usually closely follow any changes in the patient's condition, changes sometimes of so slight a nature that they would otherwise almost escape notice. The urine to be examined should be fresh, and should be a specimen taken from the whole amount passed in the twenty-four hours. The resistance diminishes as the urine is kept from fermentation changes. This method of examining the urine is completely in its infancy, and my impression is that much may be expected from its further development. Not that it is intended that it will in any way replace the ordinary methods of examination; it is an adjunct to them, and one apparently of much promise, that can be very rapidly carried out, but whose precise value has yet to be determined. Sir W. Roberts, in his lectures upon gout and the urates of soda, points to the influence of the saline constituents of the fluids of the body. It is probable that this method may prove of advantage in this direction.

In conclusion, I desire to express my great indebtedness to Dr Affleck, both for many of the specimens of urine obtained from patients under his care, and for the encouragement he has continually extended to me in prosecuting this inquiry. My thanks are also due to Dr Milne Murray for advice in arranging some of the electrical details.

VIII.—ON MALIGNANT MALARIAL FEVER IN BRITISH CENTRAL AFRICA.

By W. A. Scott, M.A., M.B., C.M. Ed., Resident Medical Officer, Blantyre Mission Station, Shiré Highlands, British Central Africa.

"Black" fever is the popular name in this part of Africa given to a variety of malarial fever of malignant type. As I do not find it mentioned in the medical authorities I possess, and as the nature of it does not seem as yet to have been fully recognised, it may be useful to record my experience of it here, especially as the treatment of it is so unsatisfactory.

It generally occurs in those who have been for a considerable time in this country more or less exposed to malarial influences, or in those whose constitution has been undermined by exposure, excessive work of pioneer kind, or excesses of other kinds. I have not heard of its occurrence in those of sound constitution who have just come into the country. Beyond that, I do not know of any common predisposing cause. Two of the cases I have seen occurred in men of exceptionally strong build, though not full-blooded. They were not good fever subjects, but what physical condition that implied I could not tell.

The first case I saw occurred in my companion R. C., while we were doing pioneer work at Mt. Mlanje, founding a new station. He had been during the three years he was in this country much exposed to malaria while making roads and aqueducts, and doing settler-work of all kinds. He had also suffered almost constant privation as regards food and general comforts. He had been very subject to attacks of ordinary malarial fever, and was often careless in treating them. All this was no doubt the predisposing cause; the immediate cause is obscure. We had just returned from a journey to the low river country; he may have received the poison there, the attack not showing itself for about eight days afterwards, as is a common rule in ordinary malarial attacks; or he may have received it immediately from the soil turned over in the work we were busy with at the time, or from sleeping in a new house, as we did. I myself had been a little over a year in the country at that time, and was exposed to the same immediate influences as he was, but without contracting any fever. Let no one suppose that there is such a thing as acclimatization to African fever—the longer one is in the country the more liable one is to a severe attack.

For a few days previously R. C. had been having slight fever, when suddenly he found he was passing dark port wine coloured urine. Under the microscope the sediment showed only black debris, no corpuscles. There was albumen present, but I had not the means of testing further, and concluded that it was bilious urine, more especially as the next day the skin and conjunctivæ began to turn yellow. The temperature was not high for malarial fever, being between 102° and 103°, with profuse sweating. From the first there was marked prostration. Treatment was by quinine, antifebrin stimulants, and fomentations to the loins.

On the second day troublesome retching and vomiting set in, a yellow, bilious-looking fluid being brought up. The temperature gradually sank, till on the third or fourth day it was below normal. The condition of the urine, however, gradually changed for the worse. The quantity lessened while the colour remained the same, till at last only a drachm of treacly fluid was passed. Then there was complete suppression. On the fourth day we got into headquarters here, but by that time uræmic symptoms were developing and hiccough had set in. The night after we got in the patient died.

The late Dr Barrie, who was resident here, told me at that time that he thought the discoloration was not due to bile, but to blood pigment.

The next case I saw occurred this year in a patient who was brought in here in January. He was a coffee-planter, and had been superintending work on an estate about seventeen miles away. He had been resident in the country for six years without a change, and though he had not suffered very often from fever, he took it badly when he did take it. His friends said that once before in fever he had passed black water. This time he noticed his water black in the morning, and came straight in here the same day.

When I saw him vomiting had not yet begun, but the skin was earthy looking. The urine was dark port wine coloured, specific gravity about 1012, no bile, considerable amount of albumen, no blood corpuscles, but the reaction for blood apparent with tincture of guaiac and ozonic ether. It was evidently a case of hæmoglobinuria; temperature between 102° and 103°. He was at once put on large doses of quinine with strong aromatics, with oil of juniper on account of its diuretic action, antipyrin and sulphocarbolate of soda, presumably as an internal antiseptic, and hot fomentations to the loins. Stimulants in the form of champagne and brandy were freely given, and a milk diet. The urine remained of the same colour that day and part of the next, and then began gradually to clear, remaining of about the same specific gravity all the time. Sweating was profuse. The bowels were open.

As soon as the urine was quite clear, giving no reaction for hæmoglobin, the albumen also disappeared, showing that there was no affection of the kidneys, and making it appear probable that the suppression which occurred in the last case was due to mechanical blocking, as in chlorate of potash poisoning. The retching and vomiting ceased at the same time, and the discoloration of the skin passed off to some extent. Lin. camph. co. on lint, covered with waterproof and applied to the epigastrium, was found useful to control the severity of the retching. It raised some small water blisters, and it was noteworthy that the contained serum was port wine coloured, showing that the destruction of red cells took place in the blood, and giving at once the reason for the lemon yellow discoloration of skin and conjunctivæ. There was no constipation, and bile was not absent from the motions.

The temperature changed remarkably as soon as the urine cleared, it sprang up quickly to about 105°, and then began to come down again one degree every day. We are in the habit here of counting such a temperature chart most favourable, as the fever in ordinary cases does not return, and remains absent for months, perhaps, afterwards. The temperature in this way came down to one degree above normal, when it suddenly rose again to 104° with a rigor, and precisely the same cycle of symptoms recurred. There was a sudden return of the hæmoglobinuria and albuminuria, the temperature fell again to 102°, vomiting recommenced, and discoloration of the skin. The same treatment was adopted, and the hæmoglobinuria again disappeared, this time within twenty-four hours. On its disappearance as before the temperature ran up to 104°, the albumen disappeared from the urine, vomiting ceased, and the temperature again began to fall gradually for three days. But on the fourth day the temperature was found to have run up to above 105°, then shortly after 106°, then 106°·2, with no attempt at perspiration. Cold packing was resorted to, and quickly brought the temperature down, but only for the time. As soon as it was discontinued the temperature rose again; no drug was of the least use; Warburg's tincture was pushed according to the directions given, but with no effect. It caused great distress from the prohibition of drink for three hours after the exhibition of it, but that was all. Antipyrin and antifebrin both failed. They are most useful in ordinary malarial fever to anticipate the sweating stage; here they had no effect. Injections of pilocarpine nitrate failed also; while aconite was being given, drop doses every twenty minutes, the temperature rose to 107°·5. Quinine was being given in very large doses continuously. It was a case of hyperpyrexia. The only treatment that promised well was the cold pack followed immediately by the steam bath. The temperature of course rose fast, but with some attempt at sweating. On one occasion, when it had reached 105°, it fell slowly again for an hour till it reached 104°, then it rose again. The steam bath also did good in producing a copious flow of urine and an action of the bowels. In a slightly less severe case it might succeed; in this case the cold pack could not be carried on *ad lib.* The circulation began to fail, the pulse became shabby and forbade the depression caused by the cold cloths. The heart failed at last before the respiration. The patient had been ill fourteen days.

I have seen one other fatal case since then in a man whose constitution had been much impaired by previous exposure and excess. He was ill for only forty-eight hours.

The clinical picture of this type of fever is thus quite definite. Hæmoglobin appears in the urine suddenly, as in the paroxysmal condition. The temperature is moderate, 102°–103°, there is profuse perspiration, the pulse is quick, out of proportion to the temperature. Vomiting soon sets in and persists as long as the blood change is progressing. The urine is of lowish specific gravity, 1012–1013, gives a pink froth on being shaken, no reaction for bile, gives the reaction for blood, but no cells are to be found with the microscope. The blood pigment is effused in the serum; on the second day of the attack the skin and conjunctivæ turn lemon yellow in colour. There is early prostration.

The issue may be suppression of urine due to blocking of the kidneys, or the urine may clear and the patient recover, or hyperpyrexia may set in with heart failure.

There have been many deaths in this part of Africa from this fever, some up on Lake Nyassa, and some down on the Lower

Shiré. It is not always fatal, but I have not statistics to show the percentage. I should think 60 per cent. do not recover. Death is sometimes very rapid. I believe that many cases have been mistaken for bilious fever—the dark urine, the yellow skin, and the vomiting leading to that supposition in the absence of means of testing. The treatment is very unsatisfactory; arsenic seemed to have no more effect than quinine. It might be worth while to try transfusion of blood from a healthy adult native, but I should not expect much good therefrom.

But the important thing is prophylaxis. Quinine I am coming more and more to believe in as prophylactic. I should almost go so far as to say that one who takes quinine regularly will not take a knock-you-down type of fever such as we have described. I have gone over the same low ground in the same circumstances on two several journeys. On one taking quinine, ten grains every second or third day, on the other not taking quinine at all. The one ended up without fever, the other with it,—that is just an example of what is common out here. The rule should be to take quinine regularly for the two months while the rains are beginning, and the same when the land is drying up after the rains. Take quinine regularly while superintending works anywhere that necessitates turning up soil, work such as clearing plantations and roadmaking. Take quinine regularly while staying on the low ground anywhere away from the plateau, for years if need be. It seems to me to hinder the development of the malarial cachexia with its enlarged spleen and deteriorated blood, a condition which may come about without frequent attacks of acute fever. The condition of matters seems to be this:—In all the low grounds in this district one is constantly taking in the fever poison, whatever that may be. The result may be constantly recurring attacks of fever, or latent malaria showing itself in passive splenic enlargement, or ulcers, or in other ways. It is not generally known at home that malaria has a surgical as well as a medical side; there is perhaps much to be learnt about it yet. I have had a patient who had suffered for months from multiple painful, superficial, smallish ulcers breaking out over the hands, fingers, or legs on the provocation of a mosquito bite, or anything else equally unimportant, without fever or enlarged spleen, though he had been living in the low country. Treatment had been going on for a while without much effect, when in about the space of two days a very badly ulcerated finger healed up fast, and coincidently an attack of malarial fever developed. Another patient I had ill in the same way, but the ulcers appeared on the feet and legs only. The only application the patient could bear was plain guttapercha tissue laid over the sores, and elastic pressure to relieve the œdema. The blandest powders were too irritating. It is worthy of note that there was no decomposition of the discharge, and no smell, although no antiseptic was used. Under this treatment and 10 grains of quinine every second day, the ulcers healed so far as to allow the patient to resume work on the lake. I hear just now that he was somewhat troubled with his feet for some time, then they suddenly healed quite up, and he took fever, from which he had been free all the time the ulcers were present. He had no enlargement of the spleen. One might multiply instances indefinitely, but enough has been said to point out a new field of interesting work in the tracing of the relations of malaria. The bacteriological aspects of the subject might promise much.

IX.—CASE OF OVARIAN DERMOID TUMOUR OPERATED UPON: REMARKS ON THE DEVELOPMENT OF SUCH TUMOURS.

By J. Nigel Stark, M.B. Edin., F.F.P.S. Glas. (Exam.); Senior Dispensary Surgeon, Glasgow Samaritan Hospital for Women; Secretary, Glasgow Obstetrical and Gynæcological Society, etc.

In this paper I shall narrate the history of a case of dermoid tumour of the ovary upon which I operated, and then describe briefly our present knowledge of these interesting growths.

B. M., 28 years of age, unmarried, began to menstruate at the age of 14, and for six or seven years was perfectly regular and normal in every particular. At about the age of 20 she began to suffer from dysmenorrhœa, especially during the first two days of the flow. This condition continued month after month since that time, the patient being generally confined to bed for one or two days at the commencement of each menstrual period. Two years before I saw her an acute attack of pelvic inflammation occurred and lasted for three or four days, but no investigation regarding its cause was made. About a year afterwards she began to notice a swelling in the lower part of the abdomen, slightly to the left of the middle line. Seven months after (October 1891) a very severe attack of what seems to have been peritonitis was experienced. The pain commenced in the left iliac region, but rapidly spread all over the abdomen. This illness lasted about a fortnight. After that time the symptoms increased in severity. The swelling enlarged rapidly; pain was almost constantly present; the desire for micturition was continual, and the performance of the act was attended with excessive pain; the appetite and digestion were greatly impaired.

Upon examination I found the abdomen much distended, the measurements at the umbilicus being 36½ inches, and between the pubes and umbilicus, 38 inches. Palpation and auscultation yielded the usual positive and negative signs of a multilocular ovarian tumour, and this I felt sure the swelling was; but upon making a vaginal examination some puzzling features were presented. The cervix was entirely obliterated, and the os was felt as a mere dimple on the vaginal roof. The pouch of Douglas was completely filled up by a firm, tense, rounded body, very slightly movable. The uterus was dragged upwards between the large anterior swelling and the small posterior one, and was almost immovable, but such movement as it did possess seemed to be shared by the posterior swelling. I did not express a definite opinion whether this tumour in Douglas's pouch was ovarian or uterine, but was inclined to believe it was a uterine fibroid with a short pedicle, jammed behind and under the uterus. However, the case was decidedly one for immediate treatment, and on 28th March 1892 I operated. Dr Ritchie Thomson assisted, and Dr Kelly administered chloroform. Upon opening the abdomen, it was found to contain a large ovarian tumour. The trocar drew off only about a pint of fluid, as there were very many cysts. Some were incised and the contents squeezed out, and the walls of others were broken down. Adhesions were extensive and firm, especially to the descending colon, and it was a task of great difficulty to effect a separation. However, one small piece after another was ligatured and divided; some parts could be torn asunder, and ultimately the pedicle, which was short and thick, was reached and tied, and the tumour removed. The swelling previously felt in the pouch of Douglas proved to be a semi solid tumour of the right ovary about the size of a cricket ball, and having a short, broad pedicle, which was secured in two pieces, and then cut through quite close to the uterus. The peritoneal cavity was thoroughly irrigated with hot water, as there had been much oozing from the adhesions and large escape of the thick, treacly contents of some of the loculi. The abdominal wound was closed in the usual manner, but no drainage-tube was introduced. Although the operation lasted two and a half hours, and was of such severity, the patient made an excellent recovery, the temperature only touching 100° F. for an hour or two.

The left tumour weighed three pounds after the loss of most of its contents. During the operation I had felt a hard body in its substance, and, upon subsequent examination, it was found to be one of the cysts filled with yellow sebaceous material and lined with a ring of bone. This ring measured four inches in circumference and one inch in depth, and was surrounded by a thin envelope of fibrous tissue. I could discover no cartilage. The weight was 130 grains after all tissues had been removed.

This case illustrates some of the symptoms usually associated with ovarian dermoids, and also points a few lessons for our guidance. For example, dermoids are said to be peculiarly liable to inflammatory attacks, and this liability we have noticed in the case considered. Therefore it need hardly be said that as soon as possible after detection, operative measures should be undertaken for their removal. Had it not been for the very extensive adhesions which had formed, the operation in this case would have been much less prolonged and severe, with a relative increase of the chances of recovery. Some authorities advise a more expectant course to be followed if a pelvic tumour is thought to be an ovarian dermoid, and they base their opinion upon the alleged slow growth of such tumours. But even if this slow growth were constant, I still think that we are justified in saying that from the tendency of many of them to inflame and even suppurate, they are the most dangerous forms of tumour met in the pelvis, with the exception, of course, of malignant growths. Another feature of ovarian dermoids which I have learned since my attention has been specially directed to them, and which has also been pointed out to me by Dr H. C. Cameron, is that very frequently in young women who are the subjects of a dermoid tumour of one ovary, the other ovary is in a state of cystic degeneration and also requires removal. It therefore seems to me specially advisable in such operations to be more than usually careful in our examination of the apparently sound ovary, and, if its appearance is at all suspicious, to remove it also.

Dermoids seem more liable to cause pain than other kinds of ovarian tumours. In the case narrated, it was noted that dysmenorrhœa was a pronounced symptom after the age of 20, and was so severe as to confine the girl, otherwise strong and healthy, to bed for one or two days every month. Probably the visible growth of most ovarian dermoids begins at puberty, when they participate in the development that then occurs in all the pelvic contents, and then by their slow, steady enlargement, they produce the distressing pressure symptoms,—rectal and vesical irritation, inflammatory attacks, dysmenorrhœa, etc.

As regards their frequency, Sir Spencer Wells says he met with 10 in his first 500 ovariotomies, and 12 in his second 500. J. B. Hunter states that they form between 3 and 4 per cent. of ovarian cysts. So far as I can judge, the proportion is about 2 per cent.

Dermoids have been described as "cysts or tumours furnished with skin or mucous membrane (which may or may not be accompanied with the appendages peculiar to these structures), occurring in situations where skin and mucous membrane are not normally found." These appendages may be hair, teeth, bones, sweat-glands, sebaceous glands, etc. During the past few years much patient study has been bestowed upon dermoids; this cannot be wondered at, upon consideration of their peculiar structure and mode of formation. Doran, in his *Tumours of the Ovary, etc.* (1884), says we can only indulge in speculations regarding their origin, but that "the dermoid ovarian question appears to be closely and inseparably linked with some of the most profound mysteries of human life." I shall mention very briefly only two of the earlier speculations as to their origin, as we have now reached some definite truths which enable us to form what is at least an exceedingly probable hypothesis. Elsner's theory was that they are all embryonal in their first structure, as they occur in places where the epiblast dips down to meet the hypoblast, and where by processes of grooved involution new bodies are formed, first in order being the testicle and ovary. Lawson Tait says that "the ovum has in it origin buds of certain tissues which, under exceptional hypererchetic action, may go on to the rudimental formation of these tissues without a fusion of the male germ." Bland Sutton, however, has brought forward a mass of evidence which demonstrates the fancifulness of such explanations, and proves the true explanation to be found in the identity of ovarian follicles with the acini of glands; or, putting it otherwise, in the fact that the follicles are mucous crypts. "Therefore, as the membrana granulosa is potentially mucous membrane, and as skin and mucous membrane are convertible structures and morphologically identical, cysts of the ovary containing skin or mucous membrane and their appendages are not more remarkable than cysts and neoplasms occurring in connexion with other glands."

The study of the evidence which leads to these statements is of deep interest, and it is also so full of instruction that I shall now endeavour to gather it together in as concise a fashion as possible. And, in the first place, it is a universally accepted truth that skin and mucous membrane possess the same structural characters; it is also well known that the columnar cells of mucous membrane may undergo modification into the stratified cells of epithelium, as, to take a common example, in the case of hæmorrhoids originally internal in situation, but which have become external to the bowel. In the study of comparative anatomy we learn that all the usual structures of epithelium,—pigment, shell, hair, sebaceous glands, sweat glands—are also existent in the mucous membrane of various vertebrates. And, lastly, in this connexion, the mucous membrane of the mouth, pharynx, and conjunctiva has the same embryological derivation from the epiblast as has epidermis. Note also that dermoid cysts may contain mucous membrane and mucous gland as well as epithelium.

And now we have arrived at the point where the question as to the origin of ovarian cysts arise; but this confronts us with several difficulties, chiefly on account of the diversity of opinion given by distinguished observers who have made careful study of the subject. It appears to the ordinary reader an impossibility for him to form any definite conclusions. So far as my own reading and observation extend, I have a decided opinion that cysts of the ovary nearly always arise from changes in the follicles. In a case which I carefully examined, the follicles could be distinctly seen in every stage of degeneration, and Doran, Sutton, and others have narrated similar observations. That there may be other modes of origin is probable, but still the fact remains that most ovarian cysts arise from degenerative changes in the follicles. Taking this for granted, we now note that each follicle is lined by the membrana granulosa, which is composed of columnar epithelial cells, and secretes the liquor folliculi. Now, an ovarian follicle passing through the various stages to become a multilocular cyst may retain the simple lining of epithelium upon the loculi, or else the epithelium may undergo growth; diverticula are sent off, and in this manner the immense number of cysts formed. The cells lining these cysts are different in appearance to those of the membrana granulosa, but, as we have seen, it is admitted that epithelium does change its character according to circumstances, and is also readily convertible into mucous membrane. So far the case is pretty evident and capable of proof, but now, as Sutton says, "the mystery up to the present time has been to definitely account for the origin of glandular tissue in such cysts, for it is well established that adenomata can only arise in connexion with pre-existing glandular tissue." He then goes on to say that as the membrana granulosa secretes the liquor folliculi, it therefore possesses the functions of a glandular structure, and that we must compare ovarian follicles and glands in general, "in order to ascertain if any phylogenetic justification exists for their extraordinary behaviour." The latest investigations upon the development of ova and ovarian follicles show that the cells, which Foulis and others proved to be germ epithelial, and from which the ova and follicles are derived, are of the same nature as those cells which in the bowel form the mucous glands. From a developmental point of view there is, therefore, evidence of the identity of the ovary with a secreting gland, and on morphological grounds this can also be proved. For example, the ovary of the frog in the breeding season consists of a main cavity with numerous diverticula which are lined with cells. Some of these cells are larger than the others, and are really ova. In mammals the more complicated structure with which we are familiar replaces the simple gland as seen in the frog, but essentially it is the same, the acini of the gland becoming represented by the follicles. Looking at this question from a pathological standpoint, we find the most intimate connexion between the diseases which attack ovarian follicles and those sometimes existing in the acini of other glands, such as the mammæ.

Thus, link by link, the chain of evidence has been formed which leads to belief in the opinion that ovarian follicles are identical with the acini of glands, or, otherwise, are mucous crypts. And, as we have already proved and stated, the membrana granulosa is potentially mucous membrane, and therefore identical with skin, so that, as was previously said, cysts containing skin or mucous membrane and their appendages are not more remarkable than cysts and neoplasms occurring in connexion with other glands.

Part Second.

REVIEWS.

Alcohol and Public Health. By J. JAMES RIDGE, M.D., Medical Officer of Health, Enfield. London: H. K. Lewis: 1892.

THIS well-written brochure adds another to the many counterblasts against alcohol, and the author has wisely dealt mainly with the Public Health aspects of this important subject; but while doing so he enters a heavy judgment against the abuses of alcohol in private life. He needs no apology for pleading against this truly national vice, and the mere mention of the 141 millions spent last year in alcoholic liquors is enough, we confess, to justify his severest denunciations. We cannot too strongly commend the careful manner in which the author has collected his facts from the most recent sources, and the calm, moderate manner in which he discusses the subject in all its aspects. To our readers the arguments adduced may present little novelty, but the concise and vigorous manner in which the various topics are dealt with renders this a useful and readable manual. Our author, in the chapters entitled Life and Death, Mortality and Sickness, Insanity and Crime, Pauperism, Accidents and Inquests, fills up a heavy indictment against even the moderate use of this seductive stimulant and narcotic. "The use of alcohol cannot be divided from its abuse by any practical method, and it is the prolific source of disease and death, besides other evils, some of which indirectly injure the public health. To advise the continued moderate use of alcohol in the face of the experience of centuries of the risk and results of that advice seems to me to be little short of criminal, having regard to the inevitable consequences. To say that 'if' only a little were taken there could be no harm done is to beg the question and to be utterly unpractical. The evils of drink are so enormous that the public health officers who seek out the causes of diseases in order to *prevent* them should make it the object of their chief opposition, causing, as it does, more disease and death than any other removable cause, perhaps more than all such causes put together. The task of removing it may seem appalling, but no really united effort has yet been made: the medical profession has spoken with contradictory voice or with bated breath. Is it not time for a determined attempt to denounce the common use of a drug which is so deceptive and ruinous, and declare that total abstinence from alcohol is the safest and best course, as it is acknowledged to be from opium, chloroform, *et hoc genus omne?*"

It will take some time before the nation at large will change its habits and give up its favourite beverages, and meanwhile what is to be done? It is somewhat disappointing to find that our author does not grapple with this question. No doubt he agrees "that poverty and overcrowding are prolific causes of disease and death, and that any means which can ameliorate or prevent these evils would greatly improve the public health. These evils are certainly not due to any single cause. There can be no doubt that the drinking customs of society and the drinking habits of the individual combine to produce and to aggravate much of the existing poverty, and thus indirectly promote the disease and cause death;" but he also insists that "were the whole of the slums of our large cities replaced by model dwellings, the habits of the population would soon render many of them as filthy as their present dwellings." We go further than Dr Ridge, and we hold that much may be done by better dwellings, by the creation of air spaces in overcrowded districts, by the erection of baths and wash-houses, open at a mere nominal payment, to suit the necessities of the veriest tramp; the cautious diminution of the hours of labour, the improvement of our places of amusement and recreation, the providing in them of wholesome beverages; the opening of museums, picture galleries, and concert-rooms on Sundays, especially in the afternoons and evenings. Let us thus gradually reform our method of public amusements, and our drinking facilities will of themselves undergo a corresponding change in the shape of better appointed and better ventilated saloons with more respectable surroundings.

All this will pave the way to the goal which is the great object of our author's aspiration, viz., total abstinence. Violent measures of repression would at once provoke opposition and retaliation, and undo the good that has silently been effected among all classes of society during the last half century by the many agencies that have been at work in support of the cause of temperance. Let us devise means whereby many of our overcrowded town populations may return to a healthy out-door life in the country, for we agree with a writer in the *Times* of 6th September, that "wherever men are engaged in a healthy out-door employment, and where their houses are also situated in healthy localities, these men, as a rule, are sober; that men employed in mines and works, where they breathe for hours a highly noxious atmosphere, where their homes are built in close proximity to the works, and where the atmosphere is more or less polluted, are always more or less intemperate." Meanwhile the question recurs, Are the members of the medical profession prepared not only to abstain themselves, but to prevent alcohol being used in their houses at their meals, thus ostracising themselves socially, or shall we wait for the gradual enlightenment of the profession and the public by such temperate and reasonable authors as Dr Ridge, and the gradual action of the means we have indicated as powerful factors in weakening the attractions of alcohol on the working classes? This little work is provided with an excellent index of subjects and authorities, the names of authors being quoted,—a custom certainly more honoured in the breach than in the observance by most of our scientific authors,—and this renders it most useful for reference.

Practical Sanitation: A Handbook for Sanitary Inspectors and others interested in Sanitation. By GEORGE REID, M.D., D.P.H., Medical Officer, Staffordshire County Council, etc. London: Charles Griffin & Company, Limited: 1892.

THIS work is the outcome of a series of lectures delivered by the author under the auspices of the County Council of Staffordshire. Though primarily intended for sanitary inspectors, it is a book from which medical officers may obtain many useful hints. The opening chapter is in the main historical, and deals with the sanitary improvements, and their effects on the death-rates, that have taken place since the passing of the Acts of 1872 and 1875. Water-supplies, their sources, storage, purification, and distribution are considered in the second. Under the heads of Ventilation and Warming in Chapter III. are discussed such subjects as the composition of the air, diseases produced by bad air, the ventilation of schools (a matter of very great importance and not sufficiently attended to, especially in our rural districts), and the different means of heating dwelling-houses and public buildings. The Teale fireplace and its most recent modifications receive a due amount of attention. The two succeeding chapters are devoted, the one to the principles, the other to the details, of sewage and refuse removal. The advantages and disadvantages of the water-carriage and the conservancy systems, the merits and demerits of precipitation, filtration, and broad irrigation, the construction of cesspools, privies, and ashpits, and the working of the Chelsea destructor, are described with a precision and fulness of detail proportionate to the size of the volume. It is interesting to note that for the sewage of villages the author prefers the land treatment with osiers as the crop requiring least attention. Three very useful chapters on sanitary and insanitary appliances, plumber's work, and house construction follow. In some of the details it may not always be possible to agree with the author, *e.g.*, in his preference for lead soil-pipes, but that need in no way detract from our admiration for the clearness and freedom from obscurity which characterise the whole work. The very important subject of Infection and Disinfection is considered at length in Chapter IX. After its perusal there can be no excuse for those sanitary inspectors (not under the direct control of medical officers, let us hope) who permit their scarlet fever convalescents to get about the streets within three weeks or thereby from the date of the rash. The concluding chapter deals with food and its inspection. A very useful appendix by Dr Manley on Sanitary Law follows, but medical officers and sanitary inspectors in Scotland had better rely on Mr Skelton's admirable handbook. Otherwise we have very great pleasure in commending Dr Reid's book to both medical officers and sanitary inspectors in Scotland. Even those inspectors who think the medical officer an unnecessary evil may peruse the volume with advantage and profit.

The Hygiene, Diseases, and Mortality of Occupations. By J. T. Arlidge, M.D. London: Percival & Co.: 1892.

The Royal College of Physicians of London deserves great credit for having selected Dr Arlidge as the Milroy Lecturer, and thus secured the publication of this admirable treatise. Indeed, Edinburgh might put in a claim to share in the honour, as Milroy, if we mistake not, was an alumnus of our School of Medicine. Be that as it may, this volume rescues Great Britain from the charge of having, since the days of Thackrah, furnished no distinct treatise on a subject which must always be to us—a nation of shopkeepers and a hive of manufactures—of supreme importance. Had we time to discuss it, it would prove, we doubt not, an entertaining task to determine the causes that have led to our apparent neglect of the diseases of our artizans. We say apparent, for no one conversant with the current literature of the last 25 years but must remember admirable monographs on some special diseases, but it was reserved for our author to expand his lectures so as to constitute them a miniature encyclopædia of all that relates to the hygiene of the working-classes. We certainly have had long to wait for it; but having submitted the volume to careful inspection,—it is hardly one that admits of continuous perusal,—we can truly affirm that its publication amply fulfils the promise of the condensed reports of the original lectures in the weekly Medical Press. Now as ever, we fear, the dominant question with young medicos is, "Will the research which I am invited to pursue pay, not only monetarily, but in giving me that reputation which is the immediate promise of good things to come?" The diseases of any special occupation, however well treated, do not constitute tempting subjects, and unless, as in the case of our author, the patronage of a Royal College smiles upon one, would prove singularly barren so far as a substantial return is concerned.

One great benefit, we are certain, will accrue from Dr Arlidge's labours, and that is, the medical mind—not to speak of the popular—will be attracted to a subject of great interest, and one which may receive, with little expenditure of thought, constant accession of interesting facts from the very numerous medical men who practise in manufacturing districts. Their name is legion, and were each to communicate to Dr Arlidge from time to time an account of the medical history of the trade in their immediate neighbourhood, it is easy to predicate that, instead of this subject, so pregnant with interest to the whole community, being treated of in a moderate octavo, many volumes would be required to do it justice. It is to be hoped, too, that, as it constitutes an important department of Public Health, and as now at length both city and county are furnished with skilled sanitary officials, we may expect in their annual reports, which too often provide a sorry diet of endless figures, readable essays on the hygiene of various trades. We cannot afford to allow France, Germany, and even Italy to take the lead in the discussion of such an important question, which properly belongs to us. Hence it is we welcome Dr Arlidge's work, which, dealing exhaustively with almost every trade, is full of interesting details, and ought to be in the possession of every health officer. One thing only we lack, and in a work of this kind it is, in our opinion, of supreme importance, and that is an index. No doubt there is a full table of contents, but with the numerous details with which every page is crammed all readers must complain of the want of ordinary facilities for ready reference. It is difficult to understand how an enterprising firm of booksellers, and any author who has consulted so many works of reference himself, should forget to supply the public with such an aid to the profitable use of this storehouse of facts.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Vol. IV. Edited by J. BATTY TUKE, M.D., and D. NOËL PATON, M.D. London and Edinburgh: Young J. Pentland: 1892.

THE fifteen papers in the present volume include four abstracts and may be roughly classified as Gynæcological, 4; Surgical, 3; Medical, 1; Physiological, 3; Pharmacological, 2; and Developmental, 1.

The gynæcological contributions are three from Dr Webster and one from Drs Hart and Gulland.

The first paper by Dr Webster is on the "Female Pelvis in the beginning of the Fifth Month of Pregnancy," and gives the anatomy of the parts in a subject in whom death occurred from cardiac failure after an operation for dermoid tumour. An unusual point was noted in the shape of the uterus which was pyriform, but wider in the lower half than in the upper, being the reverse of what obtains in the later months. If this should turn out to be similar in other five months' cases, it would lead to the conclusion that the increase in size of that organ from the fifth month onward takes place almost entirely in the upper portion. The position of the bladder and the arrangement of the peritoneum were also noted as unusual. The other papers by Dr Webster are abstracts of his Researches in Female Pelvic Anatomy and Tubo-Peritoneal Ectopic Gestation, which are to be published separately by the College. They include a study, by means of frozen sections and dissections, of six pelves obtained after death during the puerperium, and a study of the pelvic floor in twenty-one cadavera. The author states that the abundant facts derived throw considerable light on parts hitherto much discussed, and show that it is necessary to modify very considerably the views which have been made prominent by the Edinburgh Obstetrical School during the last decade. The tubo-peritoneal ectopic gestation is a form that has not been previously described, and occurred in a patient who came under the care of Dr Halliday Croom. Two sacs were found,—one formed by the peritoneal cavity behind the stomach, transverse colon, and great omentum, and containing the fœtus, the other by the enormously dilated left Fallopian tube, and containing the placenta. These sacs were connected by umbilical cord and amnion. The naked-eye and microscopic anatomy throw much light on the clinical history of this very interesting and unique case.

The fourth gynæcological paper is by Drs Hart and Gulland on the "Structure of the Human Placenta with special reference to the origin of the Decidua Reflexa." The authors feeling the prevailing views regarding the latter structure unsatisfactory, and impressed by the fact that in certain extra-uterine pregnancies the placenta developed in connective tissue, set themselves to examine the microscopic appearances of that structure, and particularly of the chorionic villi. As a result they have found themselves in disagreement with Goodsir and other observers, who describe a layer of maternal epithelium external to these villi. There is certainly a double, sometimes a triple, layer of epithelial cells, but the outer consists of cells more or less degenerated, the protoplasm granular and the nuclei smaller, showing that this outer layer is most probably derived from proliferation of the inner. The examination of a number of sections of the serotina would further tend to show that as the villi grow the serotina disappears before them, and it is suggested that certain epithelial cells at the tips of the villi observed in a six-weeks' placenta may have to do with the absorption of the degenerated decidua. These have not been previously described, but the authors think that certain cells at the tips of the villi in a four and a half months' placenta may represent a later stage of this "trophoblastic" epiblast, which when it fulfils its functions disappears. There is also evidence that the ovum grafts itself on the decidua while it is forming, inasmuch as in the six weeks' pregnancy already referred to the epithelium on both decidua vera and decidua reflexa was columnar. The conclusion to which the authors come is that the reflexa is the superficial portion of the serotina, completed after the villi have grafted themselves, and the placenta is thus formed in connective, not on epithelial, tissue.

The surgical contributions are by Dr Miles, and form part of his graduation thesis. In the first, on the "Mechanism of Brain Injuries," he gives his adhesion to the theory of Duret, that the phenomena of concussion are caused, not by vibration of the brain or by capillary hæmorrhages which are so frequently found, but by a derangement of the cerebral circulation taking the form of anæmia, which in its turn is due to a stimulation of the restiform bodies by the wave-motion set up in the cerebro-spinal fluid when a severe blow is struck on any part of the cranium. This theory affords a plausible explanation of the phenomena of "contre-coup" as well as of the hæmorrhages found on the surface and in the substance of the brain. The second paper gives details of experiments and clinical cases which go to support the theory, while in the third, on the "Microscopic Pathology of Cerebral Trauma," colloid bodies, miliary sclerosis, pigmentary degeneration of nerve cells, and minute petechial hæmorrhages, are described and explained from the same point of view. It is interesting to note that Dr Miles disagrees with Bevan Lewis in the doctrine that colloid bodies and miliary sclerosis are necessarily the result of chronic changes. The papers form a very notable addition to our knowledge of brain injuries, and fully justify the selection of the author to hold the Syme Surgical Fellowship.

Dr James Ritchie's contribution on "General Cystic Degeneration of the Adult Kidney" contains the notes of his examinations of cystic kidneys from six human subjects and one pig. These notes are followed by a summary and comparison of the microscopic appearances and a statement and critical review of the theories that have been propounded as to the etiology of the condition. Among the conclusions at which Dr Ritchie arrives are, that there is in cystic kidney an irritative lesion leading to epithelial proliferation and connective tissue changes, that this disease has no direct relation to congenital cystic kidney, which is due to an error in development, that the cysts are formed from the tubules and Malpighian bodies, and that the disease is similar in character and origin to the cystic liver and related to the adenomata. Two excellent appendices follow, one giving the bibliography, the other, in tabular form, 88 cases published since 1822, with a short analysis. The article is beautifully illustrated.

Dr Noël Paton, the Laboratory Superintendent, contributes—(1.) An abstract of a paper read before the Royal Society of Edinburgh, on the "Action of the Valves of the Mammalian Heart," in which he claims to have demonstrated, by fixing the heart in the different phases of the cardiac cycle, that the auriculo-ventricular orifices are closed by a simple approximation of the valves in a more or less vertical position, the elevation of the cusps being prevented by the chordæ, and the approximation being brought about by the action of the papillary muscles; (2.) A note on the composition and flow of the bile in man in continuation of the researches made by him in conjunction with Dr John Balfour on a case of biliary fistula (*Reports*, vol. iii.), which go to show that this fluid can in no sense be considered an essential digestive juice, and that living away from hospital restraint the only change in the bile secreted by the patient was an increase in the total solids, chiefly in the salts of the bile acids, and doubtless the result of a diet richer in proteids and of a more active proteid metabolism; (3.) Along with Dr Byrom Bramwell, who furnishes a brief abstract on the clinical history and a short pathological note, a report on a Crystalline Globulin occurring in the Human Urine, which could not be identified with any of the known globulins of the animal body, and may have been derived from the proteids in the food.

In addition to writing on the Human Placenta with Dr Hart, Dr Gulland furnishes a brief *résumé* of his paper published in this Journal in November 1891, on the "Functions of the Tonsils."

The pharmacological communications are by Dr Stockman. In the first he details his experiments on the physiological action of the active principles of *Urechitis suberecta*, a West Indian plant belonging to the order of Apocynaceæ, and believed to be used in secret poisoning by Obeah men. The active principles are two glucocides which have been separated by Mr Bowrey, and named by him Urechitin and Uretoxin. Each is extremely poisonous, and the results of Dr Stockman's experiments are to show that they are to be included in the digitalis group, and are very highly cumulative. On this account it seems improbable that they will ever prove to be of value as cardiac tonics. The second paper is written in collaboration with Mr Dott, and is a continuation of their work on the Pharmacology of Morphine and its Derivatives, which appeared in last year's Reports. The substances investigated were thebaine and methylthebaine sulphate, narcotine, hydrocotarnine, and cotarnine.

The last article in the volume is the joint contribution of Drs Symington and Alexis Thomson, and is an investigation into a case of Defective Endochondral Ossification in a Human Fœtus. The anatomical and histological characters are described in detail, the absence of the medullary canal or endosteum being emphasized, and the features distinguishing the condition from rickets fully considered.

The volume is equal to its predecessors, and is striking evidence of the stimulus that has been given to research in Edinburgh by the opening of the laboratory.

Text-Book of the Principles and Practice of Medicine. By the late CHARLES HILTON FAGGE, M.D., F.R.C.P., Physician to, and Lecturer on Pathology in Guy's Hospital; and PHILIP HENRY PYE-SMITH, M.D., F.R.S., Fellow of the Royal College of Physicians, Physician to, and Lecturer on Medicine in Guy's Hospital. Third Edition. London: J. & A. Churchill: 1891.

THE rapid appearance of three successive editions of this admirable work shows how thoroughly the medical public are able to appreciate a book of real merit. To the numerous friends and admirers of the gifted and lamented author it must be a source of great satisfaction that his teaching is as highly valued in this posthumous manner as it was while he delighted his followers in the wards of his own Hospital. May we not say of him in very truth, "He being dead yet speaketh."

The third edition of the now classical work has undergone rigid scrutiny and careful revision at the hands of Dr Pye-Smith, with whom the task has evidently been a labour of love. The result is, as might be expected, such that the most captious critic could find nothing to cavil at, and we can only express our unfeigned pleasure in recording the success of the work, as well as our hearty satisfaction with it as representative of the highest traditions of English Medicine.

One change in this, as compared with the second edition, is the adoption of quotations in the headings of the chapters. Some of these—in fact most of them—are singularly apt, and at the same time drawn from the best sources. Dr Pye-Smith obviously believes in the axiom of the great orator: "Non enim paranda nobis solum, sed fruenda sapientia est." It is always a relief in this Philistine age to find any instance of revolt against utilitarian views, and we are glad that Dr Pye-Smith has taken the trouble to place the flame of learning before the view of all.

Clinical Manual for the Study of Medical Cases. Edited by JAMES FINLAYSON, M.D., Lecturer on Clinical Medicine in the Glasgow Western Infirmary; Physician to the Glasgow Western Infirmary, and to the Royal Hospital for Sick Children, Glasgow. Third Edition. London: Smith, Elder, & Co.: 1891.

WHEN a medical work has survived the storm and stress of experience during two editions, it may well on its third appearance be held to have passed beyond the domain of criticism. Such is certainly the case with the volume before us. It has proved itself during the years which have elapsed since it first came before the profession to be a work at once very useful and highly suggestive, and has taken a deservedly high place amongst works of the kind. The present edition has been thoroughly revised, and in every respect brought abreast of the newest views, so that it may be recommended with perfect confidence as one of the very best books on the study of medicine at the bedside.

A Dictionary of Treatment or Therapeutic Index, including Medical and Surgical Therapeutics. By WILLIAM WHITLA, M.D., Professor of Materia Medica and Therapeutics in the Queen's College, Belfast. London: Henry Renshaw: 1892.

THE author has been led to write this volume by finding that attempts to form anything like a really useful Index of Treatment as an appendix to his well-known work on Materia Medica led to no satisfactory results, on account of the absolute necessity for compression.

The work now before us is a most complete dictionary of therapeutics, arranged alphabetically, and dealing with surgery and obstetrics as well as medicine. Coming from an author so much appreciated as Dr Whitla is, a high standard is to be expected, and such a requirement is fully met. Every subject which we have read is treated judicially and attractively, and throughout the whole work there is a careful attention to perspective, whereby each different subject has an amount of space proportional to its relative value.

The methods recommended are in every instance those of the most scientific modern school, and where rival opinions are current the author states them clearly, and criticises them from his own point of view. The whole work is marked by incisiveness and individuality, its literary style is excellent, and its success is certain.

An Index of Diseases and their Treatment. By THOMAS HAWKES TANNER, M.D., F.L.S. Fourth Edition revised by PERCY BOULTON, M.D., M.R.C.P. Lond., Senior Physician to the Samaritan Free Hospital. London: Henry Renshaw: 1891.

THIS new appearance of an ever popular work will be gladly hailed by many readers. At the hands of the editor it has undergone a very thorough revision, and may be regarded as at once a reliable and agreeable means of refreshing the memory as to the essential facts of most diseases.

An Illustrated Encyclopædic Medical Dictionary; being a Dictionary of the Technical Terms used by Writers on Medicine and the Collateral Sciences in the Latin, English, French, and German Languages. By FRANK P. FOSTER, M.D., Editor of the New York Medical Journal; and with the collaboration of Drs Ayres, Bronson, Bull, Coe, Currier, Duane, Gages, Garrigues, Kelsey, Nevins, and Wilder. Vols. I. and II., with Illustrations. London: Sampson Low, Marston, & Co., Limited. New York: D. Appleton & Co.

SOME years ago in these pages we reviewed the first volume of this gigantic work. We have now received volumes i. and ii., with the name of a different English publisher on the title page. We can only add to our previous notice that the second volume fully keeps up the high standard of accuracy and detail to which the first attained, and reaches the letter F. It is a work of extraordinary magnitude, implying an amount of industry on the part of the editor and his assistants, and of public spirit and enterprise in the publishers, which deserve the highest praise. It is hoped that the work may be concluded in two more volumes; but if the articles are as numerous and detailed as in volumes i. and ii., the third and fourth will probably be very thick and heavy books.

Materia Medica, Pharmacy, Pharmacology, and Therapeutics. By W. HALE WHITE, M.D., F.R.C.P., Physician to, and Lecturer on Materia Medica and Therapeutics at Guy's Hospital, etc., etc. London: J. & A. Churchill: 1892.

DR HALE WHITE is well known as an able writer on therapeutics, and has produced an excellent manual, which will take its place among the many students' text-books of the present day. The book, however, could be improved in several parts,—for example, the division of *Extracts* is very far from being logical. *Green Extracts* are only a subdivision of *Fresh Extracts;* and, again, his sixth division (Acetic Extracts) is comprehended under *Fresh* Extracts. His definition of *Liquid* Extracts is far from correct. These are not necessarily *Aqueous* Extracts, for many of them are *Alcoholic* Extracts, as Extracts of Cimicifuga, Coca, and several others which could be mentioned. We trust that in any subsequent edition these and other inaccuracies will be corrected.

Elements of Materia Medica and Therapeutics. By C. E. ARMAND SEMPLE, B.A., M.B., M.R.C.P. Lond. With 440 Illustrations. London: Longmans, Green, & Co.: 1892.

THIS is a book badly arranged, and is a most unsafe guide to the student. It is time that the author was made aware that the specific names of plants should generally begin *without* a capital letter. His classification of the vegetable Materia Medica is antiquated and not in accordance with the present state of botanical knowledge. In his preface he quotes Bentley, but why has he not, like Bentley, adopted the classification of plants which is given in Bentham and Hooker's *Genera Plantarum*, which is the highest authority on the classification of plants? At page 252, Dr Semple places the genus *Indigofera* under the division of Leguminosæ called Mimoseæ. This is surely very far from correct. We think also that the plan of arranging the Natural Orders of each sub-class alphabetically will only tend to confuse the student.

A Manual of Chemistry, Inorganic and Organic, with an Introduction to the Study of Chemistry. By ARTHUR P. LUFF, M.D., B.Sc., M.R.C.P., Lecturer on Medical Jurisprudence and Toxicological Chemistry, St Mary's Hospital, etc., etc. London: Cassell & Company: 1892.

THIS manual is "intended as a guide to the study of chemical science for the use of students of medicine." This is an excellent manual—concise, yet comprehensive—and is likely to become a popular book with students of medicine. The illustrations are also good.

The Medical Magazine: A Monthly Review of Medicine, Surgery, and the Allied Sciences. London: Southwood, Smith, & Co.: July 1892.

MANY men desire to write in a monthly magazine, and for them *The Medical Magazine* will be a boon. It is intended to supply a gap in scientific journalism, and is meant solely for professional readers, the object of the editor being to prevent so much discussion of medical matters in non-medical papers. It is not intended that this magazine should be taken up with reports of cases, or, indeed, anyway encroach upon the ground already occupied by the ordinary weekly and monthly medical periodicals. As a rule, the contributions are to be signed, and literary style is to be encouraged as far as possible. In the introduction the editor says, "We hope, by exercising a certain amount of selective authority, to reserve our pages to those who give evidence of literary experience and taste. By treating subjects of general interest to the profession within the elastic limits of a magazine article, we may perhaps give scope for the cultivation of a clearer style, free from barbarisms, and not overloaded with well-nigh incomprehensible technicalities. Thus, in a humble manner, we hope to raise the standard of professional writing, which too often and too justly is the object of derision to those whose time and opportunity are less limited by want of leisure and the restraints of etiquette." The first number contains articles from the pens of, amongst others, Drs H. B. Donkin, Charles Crichton, R. Saundby, and H. Maudesley. The magazine is well printed, and we can strongly recommend it.

The Sheffield Medical Journal: a Quarterly Review of the Medical Sciences for Yorkshire and the adjoining Counties. Edited by SIMEON SNELL, F.R.C.S. Ed. Sheffield: Pairson & Bailsford.

WE welcome with much pleasure this new journal. It opens with an excellent, well-written paper on "Accuracy in Observation" by the editor, and contains a most careful, accurate, and scientific account of an unusual case of tuberculosis of the skin, by Mr Dale James, and Dr Norman Walker of Edinburgh. Its abstracts and reviews are well chosen and up to date.

Official Calendar of the School of Medicine, Edinburgh: Winter Session 1892–93. Surgeons' Hall, Edinburgh.

THIS Official Calendar has been sent us for review, and we have naturally turned to it with much interest, as it contains the regulations for the five years' course and for the subjects which have been added to professional education.

It is never a pleasant task to find fault, but it is sometimes a reviewer's duty; and owing to the importance of the new regulations with reference to medical education and to the prosperity of the Edinburgh Medical School, we are bound to call attention to some faults in the synopsis which is published on pages 80 and 81. Perhaps so doing may lead to a revision of the whole of Appendix No. I. To refer to Chemistry—Nothing is stated in the synopsis concerning the knowledge of ordinary chemical processes and the apparatus required for their production. Again, the first two lines in the Chemistry synopsis appear to be simply playing into the hands of the crammers, as bare definitions seem alone to be required. It will be thought by students to be exactly what they have to learn and no more; but this cannot surely be meant, because it would be sheer cramming. The statement of the bodies required to be learnt about would need a much fuller synopsis than this, and therefore it should be expressed in general terms rather than specified as in the syllabus. To give an example of errors into which the student will fall. We find mentioned here under Sulphur no word about sulphides save hydrogen sulphide; hence the great class of sulphides with which a student should be familiar he may plead is without the scope of the examination, so that in this respect at any rate there is a great blank in the synopsis. As if to compensate for this deficiency, it is required that the students should know sulphur dioxide and trioxide, and also, what should be included in that but which is separately defined, sulphuric and sulphurous acids; seeing that sulphurous acid has never yet been prepared pure, it is asking rather much of the student to learn what he cannot be taught. The same remark also applies to the next heading, Thio-Sulphuric Acid, which is not known as an acid, but strangely enough the sulphates, sulphites, and thio-sulphates, which are the most important things of all, are not mentioned as requiring to be known. Similarly, under Phosphorus, the phosphates and phosphites are omitted. It cannot be argued that the knowledge of these acids is intended to include the salts which are formed from them, for nothing would be easier than to say so if it were required. A candidate is quite entitled to hold that view, because we find in other sections, such as in the sections of Carbon and Nitrogen, that not only the acids formed by these elements, but also the salts derived from them, namely, the carbonates, nitrates, and nitrites, are distinctly specified. In all this there is exceeding looseness. There are many other anomalies to be found on reading this astonishing synopsis,—for example, no mention is made of chromic acid and the important salts derived from it; a candidate is not expected to know such a simple substance as silicon, of which the greater part of the crust of the earth is composed.

Under Organic Chemistry the errors of omission are even more serious, and we fail to find reference made to chemical substances which more than all others ought to interest the medical student. Why should a medical student be allowed to pass the examination and not be expected to know what urea is ? and must he be expected to know nothing whatever of any of the aromatic compounds, whose literature at the present day is nearly as voluminous as all the rest of chemistry put together? The Practical Chemistry which is required is so small and so fragmentary that a student of ordinary intelligence, under the administration of a crammer, might be expected to acquire it all in an hour or two. We can conceive in what difficulty and perplexity an examiner would feel himself who is bound in his examination to keep within the narrow and curious limits prescribed in this synopsis. It seems that according to the new regulations the candidates are not required to have attended any course of lectures on physics, chemistry, practical chemistry, or biology. All the knowledge of these subjects can be apparently gained by reading alone, and the student is directed in biology and physics to certain books, but not in chemistry. There is a grave objection to limiting the student's knowledge in such subjects to the information contained in one or two prescribed books, when there are so many good ones available. It seems to us also in reference to these subjects, in which courses of instruction are not required, or at any rate not specified, to be uncalled for to ask the candidates to state where and how they have been instructed. We hope that the *Official Calendar* which we have received is only a proof copy, and that the conjoint Colleges will yet produce something more workmanlike, which will not have the disastrous effect of stunting rather than expanding the student's knowledge, and playing directly into the hands of the crammer.

We have not space to refer to other shortcomings, but it may be pointed out that in Physics nothing is said respecting the measurement of heat, temperature, or the thermometer, which are apparently considered unnecessary as a part of the medical student's knowledge.

It seems to us that the whole of the syllabus of Physics should be considerably expanded, and that more definite information should be given as to those points to which a medical student's attention should be more particularly directed. Of the importance of the subject there can be no shadow of a doubt, and it must be also evident that an ordinary course of physics is not suited to the requirements of the students in question.

Twenty-eighth Report of the Trustees of the City Hospital of the City of Boston. Boston, 1892.

THIS is a well-written account of the work done in Boston during the last year. The details of the cases are well given and the results obtained are very fair.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXI.—MEETING XII.

Wednesday, 6th July 1892.—Mr JOSEPH BELL, *President, in the Chair.*

I. EXHIBITION OF SPECIMEN.

Dr Clarkson showed for *Dr James Carmichael* the BRAIN from a child, 2½ years old, who died from abscess of the left lateral lobe of the cerebellum. The abscess cavity was in size 1½ by 1¼ in., and contained thick creamy pus. There was no other morbid appearance of the brain except very limited meningitis at the margin of the internal auditory meatus, over which part the bone was quite bare. The middle ear was filled with unhealthy granulations, which extended into the internal ear, the bony walls of which were carious. The clinical history of the case was that of otorrhœa, which commenced eighteen months before the child's death. The first symptom of gravity showed itself five weeks ago, when facial paralysis was observed. A week before admission to hospital drowsiness came on, accompanied by vomiting of a cerebral type. When brought into hospital the child was found to be remarkably well developed and well nourished. He had well-marked partial paralysis of the left side of the face, the pupils were equal, of medium size, and reacted to light and accommodation. There was no paralysis, contraction, or twisting of any of the muscles of the limbs. On crying there was evidence of slight inspiratory spasm of the glottis. The sensory functions were undisturbed. On examination, the left ear was discharging extremely fœtid pus, the drum membrane was destroyed, and the tympanic cavity filled with granulations. Ophthalmoscopic examination of the eyes showed haziness of the edges of both optic discs, slight obscuration of the vessels, with whitish exudation as they pass over them. The child was otherwise healthy. The temperature maintained an average normal range until shortly before death, when it ran up to 103°·6. The diagnosis was cerebral abscess, probably in the temporo-sphenoidal lobe. In consultation with his colleague, Mr Joseph Bell, it was decided to trephine the skull over the temporo-sphenoidal region. This was accordingly done by Mr Bell. The dura was found to be very tense, and on incision the brain bulged out into the opening. The temporo-sphenoidal lobe was explored in all directions with an aspirating needle, and from one of the punctures a quantity of bloody fluid escaped, relieving the tension completely. On account of the state of the child, it was not considered desirable to trephine in any other situation. The wound was accordingly stitched up, and although he became somewhat more sensible for a time, he gradually lapsed into coma, and died the next day. The case was in its clinical features an ordinary one, but none the less interesting, showing, as usual, an absence of any special localizing symptoms, which is the rule whether the lesion is in the temporo-sphenoidal region or the cerebellar lobes.

II. EXHIBITION OF INSTRUMENT.

Dr Alexander James showed a SPHYGMOMETER.

III. ORIGINAL COMMUNICATIONS.

1. *Dr Dawson Turner* read his paper on ELECTRO-DIAGNOSIS BY MEANS OF THE URINE, which appears at page 446 of this Journal.

Dr James stated that he had listened with great interest to Dr Turner's paper. He confessed that it was a subject about which he knew very little, but he believed that it was a valuable one, and he knew it was one in the working out of which our Continental neighbours were ahead of us. He thought the Society should be specially thankful to Dr Turner for having brought it forward. What struck him as being of special importance was its value in prognosis. In the cases—notably in the Bright's and pernicious anæmia cases—the gradual return of the specific resistance of the urine to the normal accompanied most closely the recovery of the patient. Now he should like to know if Dr Turner had any theory as to any constituent of the urine on which the specific resistance of the secretions might depend. They knew that, as shown by experiments on animals, the toxicity of the urine differs in different cases in a way which chemistry cannot well explain. Were they to believe that similar differences might also be demonstrated by testing its specific resistance?

Dr Gillespie remarked that the experiments of Dr Dawson Turner were very interesting. He thought, however, that the deductions were rather far-fetched, and that the number of possible combinations and permutations negatived any useful result. Although the day might arrive when such a proceeding was possible, he was afraid that physicians of the present day were not confiding enough to gauge the state and prognosis of their patients by the electrical resistance of their urine. He preferred the ordinary chemical tests both for inorganic and organic salts, and believed that the ureometer could tell with greater accuracy the variations in the daily amount of the urea, and Fehling's test the amount of sugar, than any electro-diagnostic method. He was sorry that Dr Turner had forgotten, in tabulating his results, that analysis of the day's urine only yielded data that could be depended on if the whole quantity passed in the twenty-four hours were taken; deductions from specimens passed at various times of the day were absolutely erroneous.

Dr Turner said he did not feel himself yet in a position to be able to say definitely upon what individual substance in the urine the resistance chiefly depended,—the experiments with artificial urines point to the sodium chloride. The resistance of distilled water was infinite, that of ordinary tap water was about 25,000 ohms. The only standard that one can apparently take is that of the average resistance of normal urine, which amounts to about 45 ohms. The method was not intended to supersede any of the ordinary tests for urine, but to supplement them, and it was as yet quite impossible to say what its value might hereafter turn out to be. The method was a completely new and original one, but it had already shown itself to be one of extraordinary delicacy.

2. *Dr G. A. Gibson* read his paper on the ANTISEPTIC TREATMENT OF PERNICIOUS ANÆMIA, which appeared at page 329 of this Journal.

Surgeon-Major Black said, with respect to the nature of the case related by the last speaker, he would venture to suggest that it contained some of the elements of scurvy, and might be treated with benefit by increased use of sugar in the diet, and administration of lime juice, as antiseptics in action on the intestinal canal and blood.

Dr Gillespie looked upon Dr Gibson's first case as a possible example of cure by transfusion, the second might have done as well from the mere rest from work. With regard to the causation of pernicious anæmia, especially with regard to the marvellous results of transfusion, he was inclined to look for the origin of the disease in the absence of some body allied to the class of ferments. Six ounces of blood injected into a body containing ten pounds of blood, however healthy the first and impoverished the second might be, could not conceivably cause a continuous improvement unless some body requisite for the proper formation of healthy blood corpuscles was contained in it. An analogous instance might be found in the injection of thyroid extract, in myxœdema. The bone marrow might well produce some substance, or contain some substance, which had an influence on the proper production of red blood corpuscles—which are highly specialised cells, and incapable of independent existence. If this substance were at fault the number of weak red corpuscles destroyed during their passage through the portal circulation would be increased, the liver functions overtaxed and deranged, and *propter hoc* digestion in the intestines put out of order. Under such circumstances the absorption from the intestines of alkaloids and ptomaines would be increased, and more corpuscles destroyed as a consequence, not as a cause. Then with the transfused blood an agent was injected which aided in the formation of stronger hæmocytes for a time, and allowed the iron or arsenic a chance of doing good. How otherwise could one explain the good effect of transfusion if after, as well as before the operation the state of the bowels—the cause of the disease according to some—was identical?

Dr Church said—In view of the statement by physiologists that iron cannot be taken into the system except in the form of an organic compound, the speaker inquired whether in Dr Gibson's case of pernicious anæmia iron had been taken after the operation of transfusion. For was it not possible, that by the transfusion of blood or serum the tissues associated with the process of digestion would be so enriched as to render possible the formation of a small quantity of an organic iron compound of such a nature as could be assimilated by the blood system? In many cases of pernicious anæmia, unaided by transfusion, we knew iron could not be assimilated at all. And if iron were given after transfusion, what share in the cure could be ascribed to the transfusions *per se*, and what to their power of bringing to the iron the necessary elements for the formation of organic compounds with it, and thus to what extent would the iron be rendered an available factor in the treatment? Was the transfusion of blood of real value without at the same time the administration of iron or arsenic?

Dr W. Russell thanked Dr Gibson for bringing his paper before them, as he had been unable to do so on the preceding meeting night, when the discussion on Pernicious Anæmia took place. This paper completed the discussion of this important subject for the Transactions. He thought there could be no doubt that Dr Gibson's case was as certainly a true case of pernicious anæmia as any case could yet be said to be. The effect of the β naphthol was interesting; but seeing the corpuscular richness of the blood did not rise above 50 per cent., the result could not be considered as a cure, and was not equal to the results in the good transfusion cases. Notwithstanding this inferiority in the result in this single case, there was ground for hope that it might be better in other cases, and the naphthol would certainly require to be placed amongst our resources for treatment. The value of Dr Gibson's paper had been greatly enhanced by the observations made on chlorosis with the same substance. Dr Gibson's results did not materially modify his views as to the probable nature of the disease expressed at the last meeting of the Society.

Dr Keppie Paterson referred to the use of β naphthol in typhoid fever, having prescribed it in the case of children. He used it in larger doses than Dr Gibson had recommended for adults, and with no ill effects. In a case which showed serious symptoms early in the fever, there was decided improvement after its administration, the diarrhœa being checked, the temperature diminished, and the nervous symptoms abated. A serious illness changed into one of mild type, and at a stage of the disease when one would have expected intestinal sepsis to be present in greater degree.

Drs Strachan, Foulis, and *James* also spoke.

Dr Gibson expressed his thanks to the members of the Society for their kindly reception of his remarks and his interest in the typical case described by Dr Strachan and Dr Foulis. He admitted the justice of Dr Gillespie's suggestion, that perhaps the transfusion had something to do with the improvement which the patient had undergone, but, as he had pointed out in his paper, an interval had elapsed of such length as to render the idea highly improbable. He fully concurred in most of the observations made by Dr Russell, and with regard to the suggestion of Dr James, he might state that he had once, some years ago, tried perchloride of mercury in a case of idiopathic progressive anæmia without any benefit. In reply to Dr Church he had to state that iron was not administered to the patient in question from the date of the transfusion, *i.e.*, 3rd March, until the end of May, when the protochloride was added to the β naphthol. The remarks made by Dr Foulis led him to fear that he had not made his meaning quite clear. The first part of his contribution was devoted to the treatment of pernicious anæmia, and the second part, detailing the effect of β naphthol in simple anæmia, was, as had been stated, only a check observation. He had no intention of recommending the drug in such cases, and had expressly stated that the experience of the case referred to showed that iron would have effected better results in the same length of time. He had further mentioned that he had obtained excellent results from the administration of protochloride in combination with antiseptic substances. As to the use of β naphthol in enteric fever, as referred to by Dr Keppie Paterson, he had no personal experience, but he had read some time ago with great interest the little *brochure* on the subject by Dr Yeo.

3. *Dr G. A. Gibson* read a paper by himself and Dr A. Lockhart Gillespie on LESSONS FROM THE DEVELOPMENT OF THE HEART, which was illustrated by lime-light demonstrations, and which appears at page 429 of this Journal.

4. NOTES ON INDIAN ENTERIC FEVER, by *Surgeon-Captain C. H. Bedford*, M.D., D.Sc., Bengal Medical Service, were held as read.

Part Fourth.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

PICROTOXINE IN THE NIGHT-SWEATS OF PHTHISIS.—L. D'Amore (*Progress Medico*, 1892, No. 1; *Wien Med. Pr.*, 1892, No. 13; *Les Nouveaux Remèdes*, June 24, 1892) gives the result obtained by the use of picrotoxine and atropine in the night-sweats of phthisis.

He gives the picrotoxine in granules containing $\frac{1}{160}$ of a grain each. The author reports forty-five cases thus treated. In fifteen advanced cases he gave without success two pills of atropine containing $\frac{1}{65}$ of a grain each daily; in these cases, two to four granules of picrotoxine, continued for several days, relieved the condition very much. In twenty cases, with less pronounced lesions, atropine did well in some and failed in others; but picrotoxine, used for several days, checked the sweating completely. Finally, in ten early cases, the results were equally good from the use of either drug. The writer explains these differences by the cause of the sweating in the several stages of the disorder. In the early stages much of the sweating is due to the action of the secretory nerves, and these are controlled by atropine; later the sweating is due more to paralysis of the vaso-motors, and as atropine does not act upon these it loses its power, while picrotoxine, which does act upon the vaso-motor system, retains its value in the advanced stages.—*Therapeutic Gazette*, September 1892.

A NEW COCA BASE AS A LOCAL ANÆSTHETIC.—Dr Arthur P. Chadbourne, Boston, Mass., in the *Therapeutic Gazette* of September 1892, says a new coca base has recently been isolated by Giesel from the leaves of the small-leaved coca plant of Java. Liebermann has proved that this base is benzoyl ϕ tropeine, which bears no relation to the cocaine group, but is chemically closely related to atropine. In its local action the new alkaloid is a connecting-link between the true local anæsthetics (cocaine) and the "anæsthetica dolorosa" of Liebreich. In the experiments now described the hydrochlorate of benzoyl ϕ tropeine was used, the alkaloid itself being insoluble in water. For brevity the name "tropsin" is here given to the drug.

PRACTICAL TESTS ON THE HUMAN SUBJECT.—Professor Schweigger of Berlin, after several months' experience with tropsin in eye surgery, reports that,—1. A three per cent. solution produces complete corneal anæsthesia more rapidly than cocaine. Iridectomy could be done painlessly two minutes after putting three drops into the eye. 2. Anæsthesia lasts from three to six minutes for each instillation, and no further prolongation can be produced save by a fresh dose. 3. Mydriasis is absent, or but slight. 4. Ischæmia never occurs, but sometimes there is a passing slight hyperæmia and a little smarting unless normal saline solution be used as a solvent. 5. No injurious symptoms were ever observed. 6. In removal of foreign bodies, tropsin seems, from its quicker action, far preferable to cocaine. Dr Silex, assistant in the Polyclinic, has obtained similar results, and has painlessly performed tenotomy within half a minute from applying a three per cent. solution of tropsin.

PHENOCOLL IN MALARIA.—Albertoni (*La Riforma Medica*, February 5, 1892; *Revue de Thérapeutique Générale et Thermale*, June 20, 1892) has tried phenocoll, a derivative of phenacetin, in thirty-four cases of malaria, with a permanent success in twenty-four, doubtful results in five, and failure in the other five. Some of the patients cured have suffered severe relapses after treatment with quinine. It was given in 15-grain doses, in powder, six or seven hours before the expected paroxysms, to prevent relapses. It has no unpleasant after-effects, and the taste is easily covered by mixing it with sugar when children take it without difficulty. The drug has also the advantage over quinine in that it is not subject to the same fluctuation in price.—*Therapeutic Gazette*, September 1892.

THE PHYSIOLOGICAL EFFECTS OF A FLUID EXTRACTED FROM THE SEXUAL GLANDS, ESPECIALLY THE TESTICLES.—In a further communication to the Académie des Sciences, Brown-Séquard (*Les Nouveaux Remèdes*, June 24, 1892) gives the results of three years' use of the subcutaneous injections of testicular fluid, especially in old men. He believes that the sexual glands have at least three distinct uses, consisting—1, in their rôle in procreation; 2, in the influence that certain principles that are absorbed from them have on the nerve centres, giving the physical, moral, and intellectual characters proper to either sex; 3, in a special tonic action, which increases certain active powers of the brain and cord. This last is the especial object of the study. As early as 1869 he advanced the idea that the sexual glands had internal secretions, which supplied useful, if not essential principles to the blood. The first trial of the liquid in man was in the case of a well-known savant, aged 72, who had became so weakened by age that he could hardly work standing half an hour in the laboratory, and to whom mental work had become very difficult. Since 1860 he had been in the habit of measuring at short intervals the strength of the flexor muscles by the dynamometer, and from a maximum of fifty kilos. in 1860, it had fallen to thirty-seven kilos. in 1869. He gained strength and mental vigour from the first injection, and reached forty-four kilos. of flexor power. He could work for hours in the laboratory, and leave it in good condition to write memoirs on different subjects. The same patient, a short time ago, was moribund from the combined effect of an enteritis, a pertussis, and a rheumatic spasm of the muscles of respiration. A very strong preparation of testicular fluid was injected, with complete disappearance of all the alarming symptoms, which did not show themselves afterwards. Other cases are those of a man, 89 years of age, who could hardly go up and down stairs in his house, but who was enabled to make long horseback rides without fatigue, after the injection made by Cariot, and whose improvement has continued for two years, the injections being made at intervals; of an old man dying from malarial cachexia at Port Louis, when Laurent injected the fluid from the testicles of monkeys, with the result that the patient arose from his bed the next day, after being confined to it for years; finally, of a young woman, wife of a Parisian physician, whom Gleg rescued four times in five months from profound anæmia, the result of profuse pulmonary hæmorrhage, by injections of testicular fluid. Special precautions taken in many cases show that the result was not one of auto-suggestion. Brown-Séquard insists that the fluid does not act as a stimulant which calls into action pre-existing forces, to be followed by depression, but that it increases the transformation of energy, to which are due the various powers of the spinal cord and brain.—*Therapeutic Gazette*, September 1892.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

THE TREATMENT OF ECZEMA.—Veiel has summarized his methods of treating eczema very happily. In cases where there is no oozing he finds dry, cold applications, as ice-bags wrapped in a cloth, or powder-bags containing starch, or the glycerine jellies, the best. By means of the latter it is frequently possible to nip a commencing acute eczema in the bud, though not without some pain in certain cases. If the jellies are not borne well, or weeping occurs, treatment by dusting powders proves the best mode, continued till the more acute manifestations abate. Persistent weeping places heal most rapidly under Unna's zinc salve muslins or Lassar's paste, or by the employment of the salicylic soap plaster introduced by Pick. In the scaly stage a 5 per cent. tannin ointment acts admirably. When this is used over the whole body, he has repeatedly seen swelling of the gums and slight salivation appear. In chronic eczema he has seen many cases recover when treated by Pick's sublimate gelatine and salicylic soap plaster. The latter is preeminently useful as a disinfectant covering and to cause absorption of pachydermatous infiltrations. In thickened eczema of the palm and sole the salicylic plaster muslins of Unna are to be preferred. On hairy parts, particularly on the head, a strong 10 per cent. salicylic ointment soon reduces an oozing eczema to dryness. There are, however, many examples of eczema in which we must have recourse to tar. There is, indeed, yet no remedy which can completely replace tar in the treatment of eczema, particularly in those forms in which the nervous system is markedly involved. To use tar properly, to habituate the skin to it, is at once one of the most difficult and the most grateful of tasks. The rule that tar must only be used to dry patches of eczema is, no doubt, a correct one; yet there are many weeping eczemas, especially on the face, which cannot be rendered dry without the application of tar, or if dry, unless tar be used they constantly weep afresh. He esteems tar-soap as the mildest preparation, the lather, painted on twice a day, is, he states, often quite sufficient to cure a widespread eczema. This is specially efficient in the universal scaly eczema of elderly people, particularly when conjoined with zinc jelly, which protects from irritation occasioned by the friction of the clothes. Tar ointments come next to tar soap, a commencement being made with 1 per cent., gradually increasing to 50 per cent. As a basis for these ointments he prefers tannin cold cream, or the unguentum vaselini plumbicum. It is often possible in this way to habituate the most irritable skins to the application of tar, and to render them completely resistent to atmospheric influences, especially if, towards completion of the cure, weaker tar ointments are rubbed in for some time only at night, to which patients make the less objection, as the ointment can be so readily wiped off in the morning. In cases where the infiltration of the skin is more considerable, and where the tar preparations act too slowly, he uses chrysarobin or pyrogallol, protecting the neighbourhood of the affected parts by zinc jelly. He gives the preference to chrysarobin on the scrotum, at the anus, on the neck and flexures of the joints, while pyrogallol suits better in obstinate eczemas of the nipple, the palms, and soles. In the case of both remedies he begins with a 2 per cent. vaseline ointment, increasing, if possible, to 10 per cent. In eczema situated at the junction of the mucous membrane and skin, a simultaneous treatment of the mucous catarrh is absolutely necessary. For the eyes, a watery solution of salicylate of zinc, ½ per cent., has suited best; for the nose, a boracic zinc vaseline, containing 20 grains of boracic acid, half an ounce of oxide of zinc, and an ounce of vaseline; for the rectum and vagina, suppositories of tannin 10 per cent.—*Ergänzungsheft zum Archiv für Dermatologie und Syphilis*, 1 Heft, 1892.

AN ELECTRICAL NOVELTY.—Mr Quarrie claims to have discovered that various maladies affecting the eyes, the teeth, and other organs, are due to our wearing shoes, or more properly, leather coverings for the feet. He says,—"Let a man be placed on an electrically insulating glass stand in a dry atmosphere, and let him begin exercising with a pair of dumb-bells; let the soles of his feet be electrically connected with earth by a copper wire, having fixed on it a galvanometer,—it will be found that as he exercises, the galvanometer will be strongly deflected, showing that a current of electricity is passing from the man's soles to the ground." Thus he believes that civilized man is seriously damaged in health by wearing on his feet a covering in the shape of prepared leather, which more or less insulates his body from the earth. He cites in illustration the case of poor children running barefooted and in robust health, while those of the better classes, otherwise in circumstances more wholesome, though with constantly covered feet, are pale and weakly. In Scotland, in the grounds of large mansions, where large lawns are kept closely mown by horse-power, he observed that the men never used the same horse two days in succession. The reason for this he found to be, that as the horses in this work are always shod with great leather or rubber overall shoes or slippers, to prevent their cutting or defacing the sward, they cannot be so employed day after day without serious damage to their general condition, but especially *to their eyes.* A week or two's continuous work at this invariably injures horses' eyes, some becoming in that time totally blind. As a remedy he provides the ordinary shoes with an insole of good conducting material, with very fine wires invisibly fixed, so as to afford perfect electrical communication between this insole and the earth, so that a man is caused, in an electrical sense, to literally walk barefooted on the ground as he ought to do. The effect of this most simple attachment to shoes, as an immediate relief from cold feet in winter, and from painful and swollen feet and ankles in summer, often amounts to something like a miracle. He has himself purposely worn rubber-soled shoes until his eyes became sore as if filled with sand, and the pain in his soles was unbearable. He had then attached the metallic earth connexion as described, and at once all was changed—the shoes immediately became easy, not hurting his feet at all, and in a short time his eyes were again perfectly well. At the same time, he has become free from toothache and cough, from both of which he previously suffered much. Other facts in support of his statements are furnished, but we have given enough detail on a subject of possibly much practical interest.—*New York Medical Journal*, July 9, 1892.

LICHEN RUBER OBTUSUS.—Dr Grindon thinks that till there is greater agreement as to what constitutes lichen ruber, the lichen group is a convenient one to include cases of somewhat uncertain definition. And he thinks that obscure, chronic, inflammatory, papular affections which will not readily fall under either of the other accepted titles may be for the present classed under lichen ruber. His case was that of an Englishman residing in America since 18— and now 66, with a good personal and family history. Twelve years ago he began to have considerable pruritus in the beard, which led to his shaving off the hair. This continued for five years, when in autumn of 1884 a discoid patch appeared on the right cheek, consisting of closely crowded, not confluent, dark red, firm papules, smooth but not scaly, pruritic, and which seemed to be increasing in number at the periphery. The disease spread gradually to the other cheek, the upper lip and nose, accompanied by increased itchiness, and being better in warm, and worse in cold weather. In 1888 the patches were smooth, leathery, and resistent, but free from scales. The isolated papules were circular, from a quarter to a third of a centimetre in diameter, hemispheroidal, bright or dark red, or brownish, in some instances almost skin colour, smooth and shining, but not having the glistening sheen so often seen in lichen planus. No constant relation to the hair follicles could be made out; they were firm and intensely itchy. The disease spread to the limbs and trunk; the palmar and plantar epithelium was dry and thickened; most of the nails were hypertrophied, dry, brittle, and lustreless. The axillary, inguinal, and other glands were hard and enlarged, but not painful. The itching, especially on undressing at night, was ferocious. Neither arsenic nor antimony, which was also tried, had any appreciable effect in controlling the complaint. Unna's carbolic sublimate ointment was used thoroughly and with persistence, and produced gradual though unmistakable benefit. Not only was the pruritus relieved, but the lesions began to disappear. He met with a severe surgical injury, which confined him to his bed for a month. And within a few days the disease, which had fluctuated, though on the whole little, rapidly began to fade, and in three weeks there was hardly a trace left. For about two months he remained free from all skin lesions, though for six months before he had received no treatment whatever. Gradually, however, the complaint returned, though not, so far, to nearly the same extent. The disease presents closest analogy to lichen ruber of Hebra, and differs from lichen planus, in particular in distribution, affecting the face, which is spared in lichen planus, the nails and the hair system, and in attacking the extremities late and sparingly. The resistance to antimony and arsenic is singular, but the duration of their administration and the dose is not mentioned.—*Journal of Cutaneous and Genito-Urinary Diseases*, June 1892.

Recent Researches on Favus.—Since Quincke described three species of favus due to as many varieties of the fungus, renewed interest has been excited in the disease. Unna has recently directed his attention to the question, and from his cultivation experiments, combined with inoculations on human beings and on mice and other animals, has come to the conclusion that there are at least three varieties, which, however, do not entirely correspond to the three formulated by Quincke. He remarks pertinently—"In fact, as soon as it is settled that there is more than *one* species of favus fungus, it follows that there must be more than one disease known by that name. And if, after fifty years' acquaintance with the characters of favus, it should appear that this is a new clinical fact,—one which is received incredulously by a number of specialists,—then, indeed, our superficiality in clinical matters receives a sharp rebuke. For what disease has been hitherto considered as presenting more uniformity of type than favus, with its characteristic sulphur-yellow scutula?" Quincke thought that a simple division into scutular and herpetic favus was possible, but Unna shows that each species of favus that is transplanted to a relatively unfavourable skin, or is prevented from growing by external circumstances (other fungi), may produce scales, crusts, erythema and vesicles, and after running an acute course, disappear. Mice, it is well known, are not infrequently attacked by favus, and Unna shows that they contract it from one another by feeding—the greater frequency of the disease on the nose of the mouse supports this—and he succeeded in producing the disease in them by giving them the favus cultures to eat. A favus scutulum from a child's head produced cultivations, which inoculated into the skin of a man free from hair, caused only transient superficial disease, the so-called favus herpeticus; yet the same cultivations when eaten by mice gave rise to scutula. He gives the description of the scutula in his three varieties, and figures each.—*British Journal of Dermatology*, May 1892.

Dubreuilh and Sabrazco direct attention to favus circinatus as contrasted with tinea circinata. They have found patches of eruption resembling body ringworm associated with favus in characteristic form on the scalp. Hebra has recorded and figured such in his Atlas, but he confounded the eruption on the body due to favus with that due to ringworm, and thought there was a combination of the two. Dubreuilh says that the patches, though well defined, are not marginate, as those due to trichophyton, and have not the same tendency to heal in the centre. This occasions a close resemblance to some examples of eczema in patches. The microscope furnishes materials for an exact diagnosis. The conclusion of the French observers seems to be, that there are yet no data on which to build a theory of various species of favus.—*Annales de Dermatologie et de Syphiligraphie*, Mai 1892. No. Supplementaire.

PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P. Ed., F.R.S.E., Lecturer on Diseases of Infancy and Childhood, and on Midwifery and Gynæcology, School of Medicine, Edinburgh.

Multiple Polypus-like Hypertrophies of the Vaginal Wall.—Rissman saw in a case of labour a pale red mass appear at the vulva compressed between the advancing head of the infant and the vaginal wall. It was at first thought to be a condyloma. After the birth of the child the neoplasm was seen to have its origin from the anterior vaginal wall just behind the urethral orifice; its breadth at the base was 2 cms., and its length was over 8 cms. It diminished in size near its free end. Attached to the posterior vaginal wall were two similar but shorter growths. These were all excised on the tenth day of the puerperium. Microscopically they were found to be polypus-shaped connective tissue hypertrophies of the vaginal wall. Gonorrhœa was not present.—*Centralblatt fur Gynäkologie*, No 24, 1892.

A CASE OF DYSTOCIA FROM UTERINE ERGOTISM.—M. Chaleix records under the above title an interesting obstetric experience. A woman at the full term of pregancy passed from the vagina a large quantity of liquor amnii with some blood and meconium. She had felt no movements for several days. During the next three days she had no labour pains, but a midwife was in constant attendance and made frequent examinations without taking any antiseptic precautions. On the third day from 6 to 8 grammes of ergot were administered by the midwife; this was followed by severe pains. A foot and a hand were felt in the vagina, and various attempts were made to deliver by forcible traction. The patient became very ill and was brought into the Hospital. Her breath was fœtid, her tongue dry, and her complexion earthy; she had a temperature of 39° C., and a pulse-rate of 130. The uterus felt hard, but the patient had no pains. The right foot and hand of the fœtus were prolapsed through the firm and contracted cervix uteri. The prolapsed parts were macerated and had a fœtid odour. A Barnes' bag was introduced into the cervix and distended, after prolonged vaginal irrigation. After the cervix was somewhat dilated a breech presentation was diagnosed, with prolapse of the left leg and right hand. Forceps could not be applied on account of the rigidity of the cervix. After some trouble the fœtus was rotated by means of the prolapsed leg, and the leg in utero was thus brought from its position above the symphysis pubis round into the hollow of the sacrum. Labour was then completed by traction, forceps being needed for the after-coming head. The placenta was expelled naturally,—it was large, soft, and of a greenish colour. The fœtus showed signs of putrefaction. For about a fortnight after delivery the woman remained in a dangerous condition, the uterus continued hard, and there was fever and fœtid diarrhœa. Under antiseptic treatment, and with the use of quinine and alcohol, the patient ultimately recovered.—*Archives de Tocologie*, Juin 1892.

DILATATION OF THE UMBILICAL VEIN.—Maygrier showed a specimen of a placenta weighing 680 grammes, and having at the level of the insertion of the cord an ectasy of the umbilical vein of the size of a pigeon's egg. The fœtus, although it showed signs of maturity, was very small—it weighed only 1780 grammes. It was born alive, and throve well. The writer considers that the cause of its small size was the obstruction to the circulation produced by the ectasy of the umbilical vein.—*Annales de Gynécologie*, Juin 1892.

ON OPERATION FOR INTESTINAL OBSTRUCTION IMMEDIATELY FOLLOWING ABDOMINAL SECTION.—J. W. Taylor, in the *American Journal of Obstetrics* (July 1892), records three cases in which the abdomen was reopened for intestinal obstruction following laparotomy. In the first case a soft cancerous tumour of the right ovary was removed. Some soiling of the peritoneum probably occurred, and although the pelvis and abdomen were irrigated, symptoms of obstruction set in less than twenty-four hours after the operation. To complicate matters, the woman suffered from albuminuria. The abdomen was incised above the right groin, for distension of the cæcum had been diagnosed, the bowel was brought to the surface, opened, and its contents allowed to escape. The next morning the same thing was done with some coils of small intestine near the middle line. The obstruction was relieved, but the patient ultimately died on the twelfth day after the original operation. In the second case symptoms of obstruction appeared after an operation for tubal gestation. The abdomen was reopened, and the cæcum and appendix vermiformis were found distended and inflamed, and fixed by adhesions to the left side of the pouch of Douglas. The cæcum was freed from adhesions, and returned to the right side of the abdomen. The patient made a good recovery. In the third case the obstruction was due to adhesions of the intestine to the abdominal incision, probably caused by the use of the ethereal solution of iodoform as an antiseptic. After the second laparotomy the patient recovered.

HABITUAL ABORTION.—M'Kee reports a case of habitual abortion with "fatty" placenta, in which chlorate of potash, given in doses of 15 grains three times a day, resulted in the birth of a healthy boy. This happy result occurred in two successive pregnancies, although the ten previous gestations had all ended prematurely. The mother's own health and that of her husband were both good. There was no evidence of syphilis.—*American Journal of Obstetrics*, July 1892.

EXCISION OF THE CERVIX UTERI.—Dr Alloway gives the results of ninety-one operations upon the cervix uteri for long-standing laceration and proliferating endometritis. He used to employ Emmet's method, but was led to adopt that of Schröder, in which not only the sides and cicatricial angles, but also the diseased central ridges of cervical tissue, are removed and flaps formed by the portio vaginalis. This is really amputation of the cervix. Dr Alloway defends this procedure, for no one, he says, can ascribe a useful part in the sexual economy to the ordinary diseased cervix; and, further, its removal tends to cure sterility, it does not interfere with the course of pregnancy, and labour is rendered easier and more rapid. In none of his ninety-one cases was there a single rise of temperature above normal on or after the second day following the operation. The dangers of the operation may be summed up in one word, "hæmorrhage," and therefore the work must be done rapidly.—*Montreal Medical Journal*, No. 11, vol. xx., 1892.

Part Fifth.

MEDICAL NEWS.

Dr J. H. Musser of Philadelphia has published a paper in the *Medical News* (April 29, 1892) on "The Uses of Fever and the Dangers of Antipyretics in Typhoid." He believes, and justly we think, that nowadays antipyretics are used too indiscriminately and largely, and calls attention to three periods in the course of typhoid fever when their use is contraindicated. *First,* In the early or middle period of cases that have been removed to hospital from a distance. It is well known that for the first 24 hours after the admission of such patients the temperature is abnormally high, the high temperature being due to exhaustion, and calling for stimulants, perhaps, but not for antipyretics. *Secondly,* There are patients with peculiar idiosyncrasies in which a high temperature is recorded, and where antipyretics induce increased headache and serious nervous symptoms. Again, in the latter stages of typhoid fever Dr Musser believes that antipyretics are especially dangerous. In one class of cases the temperature persistently remains at the maximum, but there is abatement of all other symptoms,—lessening of the diarrhœa, cleaning of the tongue, diminution of the delirium, and even lowering of the pulse, with increase of strength. The other class of cases is one in which the morbid process is terminated, but—on account of the exhaustion, or the long continuance in bed, or the limited diet—the temperature keeps up or even begins to rise. The use of stimulants, solid food, and getting the patient out of bed, bring back the temperature to normal.

In the *Climatologist* of November 1891 Dr Musser strongly advises the removal of cases of whooping-cough to the seashore or the country, and recommends that proper institutions should be founded for the reception of such cases, as of course hotels and lodging-houses object to their reception. He also lays particular stress on the absolute necessity for proper disinfection of rooms and clothes after whooping-cough.

In the *Blätter für Klinische Hydrotherapie,* August 1892, Dr Buxbaum writes on the treatment of cholera by cold water. He seeks to prove that those persons who are accustomed to cold bathing are rarely attacked by cholera (because they are cleanly, perhaps), and also that the best method of inducing warmth in cholera patients is by cold, not by hot baths.

In the same journal for August and September Dr Fodor writes an interesting and noteworthy paper on the treatment of ague by baths and douches, especially in those cases where quinine does not prove efficacious.

In the *Alienist and Neurologist*, July 1892, Dr C. H. Hughes writes on the hysterical concomitants of organic nervous disease. He shows that "some hysteria, *ergo*, all hysteria" is a clinical conclusion which is proved in numberless instances fatal to correct diagnosis and to the welfare of many patients.

In the *Centralblatt für Nervenheilkunde und Psychiatrie*, August 1892, there is a very good paper by Dr G. Bushan of Stettin on the proofs of identity of criminals and their practical value for criminal statistics. He gives an account of the methods of performing "Bertillonage," shows that the whole operation only takes 7 minutes, and points out that in various ways the methods of measurement might be improved.

Mr A. F. G. Kenyon, who last year edited the newly discovered papyri of Aristotle and Hermondas, describes another similar manuscript which contains an ancient treatise upon medicine by a Greek author, probably of Alexandria, written about 100 B.C.

In the *Medical Record* for August we notice that the Pennsylvanian Medical Society propose to memorialise the Legislature to appoint one female assistant to each hospital for the insane in Virginia, and in their petition they state that "the marked success of management by trustees in the Eastern Hospital at Norristown and the value of female physicians for female insane have been exemplified grandly in that place with its 2000 patients." The editor of the *Medical Record*, in reference to this, says, "As a matter of fact, the latter part of the above resolution is pure rhetoric. The attachment of a female physician to the Norristown Asylum has brought to that institution neither 'grand success' nor the opposite. It has made very little effect, if any, upon the economics of asylum administration or the therapeutics of asylum treatment. The truth is that those physicians best acquainted with the management of asylums do not, as a rule, favour the legal establishment of medical women on the staff; perhaps they are prejudiced, but it is fair to assume that they know their business better than the professional world-betters who are bolstering up the movement for compulsory female medical attendance on the insane. We believe it should be made an optional matter with the superintendent. Sometimes a female physician is needed and is useful, sometimes she may be useful but not needed, and there are specimens of the lady medical who neither adorn nor help this ill-illuminated world. It is wrong in principle and unwise in practice to legislate physicians into office because of their sex. The world is governed too much when such laws are enacted."

Prize Essay on Rickets.—John Strahan, M.D., Belfast, has been awarded, at Boston, the Triennial Warren Prize, value 500 dollars, given by the Massachusetts General Hospital, for a treatise on "Rickets." The prize was open to competition by all the world, the subject left to the candidate, and the prize to be withheld if no essay of sufficient excellence were submitted. The treatise will be published shortly. In 1886 Dr Strahan gained the Fothergill Gold Medal, value twenty guineas, of the London Medical Society, for an essay on "The Varieties and Complications of Typhoid Fever," and in 1889 the Jenks Memorial Prize of 250 dollars, given by the College of Physicians, Philadelphia, for an essay on "The Diagnosis and Treatment of Extra-uterine Pregnancy." For the latter he was also elected Corresponding Member of the College.

MESSRS BURROUGHS, WELLCOME, & CO., the well-known London Chemists, have sent us the following specimens:—

1. "Tabloids of Blaud's Pills, 4 grains" This is an excellent preparation of a most valuable drug.
2. "Tabloids of Compressed Ichthyol, 2½ grains each." Each tabloid contains 2½ grains of sodium sulpho-ichthyolate. The coating of sugar covers the disagreeable odour of ichthyol. These tabloids will be found very convenient for administering a most useful medicine.
3. "Tabloids of Compressed Resorcin, 3 grains." Resorcin is now regarded as a valuable addition to our Materia Medica, and these tabloids form a ready way of administering it.
4. "Tabloids of Compressed Ergotin, 3 grains." These tabloids are easily administered, and the preparation only requires to be known to be most extensively used.
5. "The Elite Toilet Lanoline Cream." We can confidently recommend this as a most useful and elegant preparation.

MESSRS A. SORDO LOPEZ & SON, London, have sent us samples of Spanish Wines,—one, Red "Valdepeñas," and the other White "Valdepeñas." These are excellent wines, cheap, and are calculated to be of much benefit to patients. The "Red" is a kind of claret resembling Burgundy, and the "White" is a light dry sherry, with a taste not unlike hock. The wines are moderate in price.

NIEMANN'S CARNINE SYRUP.—We have received from R. F. Macloskey, of Manchester, a sample of Syrup Carnis. This is a preparation of raw meat-juice obtained by hydraulic pressure and preserved by pure cane sugar. It is an excellent preparation in many respects, but sometimes ferments and bursts the bottle.

OBITUARY.

ALEXANDER KEILLER, M.D., LL.D., F.R.C.P. Ed.

DR ALEXANDER KEILLER, better known as of 21 Queen Street, but latterly of 54 Northumberland Street, Edinburgh, died at his marine residence in North Berwick on Monday, the 26th September, aged 81. In his decease another of the few surviving links between the medical profession as it existed at the commencement, and as it now exists at the end of the present century, has been removed. He had been associated with much of the work done, with all the advances made, all the innovations introduced for the last fifty years in our great Edinburgh Medical School, and he died as he had lived, full of a deep and lively interest in its welfare. Dr Keiller was born in Arbroath on November 11th, 1811. About the year 1830 he commenced the study of Medicine; previous to this he had been an advanced pupil of a well-known educationist of Dundee, Mr David Lindsay, who prepared him in his preliminary subjects, and of whom, so late as August last, Dr Keiller communicated a short memoir to the British Association in connexion with Lindsay's influence on electric lighting. In 1835 he obtained the degree of M.D. at St Andrews University, having previously received the diploma of the Royal College of Surgeons of Edinburgh in 1833. He was elected Fellow of the Royal College of Physicians, Edinburgh, in 1849, was President of that College during the year 1875–76, and in 1886 had the honorary degree of LL.D. conferred upon him by the University of St Andrews. With Dr Keiller, Obstetrics from the first seemed to have been a special and attractive branch of study, as in this department he was during his student days a prize pupil of Zeigler's. But apart from any one branch, his knowledge and acquirements, his experience, and his ability were wide and comprehensive, and in his time he had accordingly played many parts. Up to the year 1833, when Dr Keiller took his diploma of L.R.C.S., the able and notorious Dr Knox was lecturing with immense *eclât* at No. 10 Surgeon Square. Keiller had been one of his favourite pupils, and was regarded by him as a clever and promising young anatomist; and, as perhaps might have been expected, when Dr Knox in 1842 disposed of his museum and discontinued lecturing, Dr Keiller took up the subject of Anatomy, and in conjunction with the late Dr Skae commenced a course of lectures on this branch, Dr Keiller superintending the practical department. After two sessions of this work he moved to Dundee, where he was engaged for seven years in general practice. He, however, at the solicitation of his friends returned to Edinburgh, where he next lectured for several years on the subjects, consecutively and during different sessions, of Materia Medica, Medical Jurisprudence, and, lastly, on Midwifery and the Diseases of Women and Children, to which subject he more exclusively devoted himself during the remainder of his life.

Dr Keiller's early experience as an anatomist had been, as he often expressed it, of the greatest service to him in many ways. Subsequently to taking his diploma of L.R.C.S., he had, while acting as prosector to Dr Jardine Lizars—afterwards Professor of Anatomy at Aberdeen—made and superintended the preparation of a large series of dissections and drawings in Regional Anatomy. And the numerous artistic preparations, models in wax, and other interesting pieces of work with which his Museum at Surgeons

Hall was stored, indicate his abilities in this direction, and the value he attached for teaching purposes to illustrations of the kind. In 1853, on the death of Dr Campbell, he was appointed Lecturer on Midwifery in the Extra-Mural Medical School at the Royal College of Surgeons; and in 1851 he was elected one of the Ordinary Physicians to the Royal Infirmary, which office he held for a period of fifteen years. During that time he arranged with Drs William Gairdner and Warburton Begbie, then Physicians to the Hospital, to institute the course of Clinical Teaching of the Diseases of Women, which Keiller conducted, and which has ever since been continued, and for which an extra ward was agreed to be, and still is set apart. He was Physician to the Edinburgh Maternity Hospital, in which Institution he all along took a deep and warm interest. He was an Examiner in Midwifery for the University of St Andrews, the University of Edinburgh, and the Royal Colleges of Physicians and Surgeons with the Glasgow Faculty. On retiring from the Royal Infirmary he was appointed an Ordinary Physician to the Royal Hospital for Sick Children, which position he occupied for upwards of eight years, during which period he delivered the Clinical Lectures on Children's Diseases, one of the principal educational features of that Hospital. While holding these important appointments and carrying on their arduous work, Dr Keiller frequently, and on several occasions for lengthened periods, discharged the duties of the University Chair of Midwifery at the request of the late Professor Sir J. Y. Simpson, with whom he was on terms of an intimate and valued friend. On the death of Sir J. Y. Simpson, Dr Keiller was one of the candidates for the vacant Chair in the University, and among somewhere about 200 testimonials presented in his favour on that occasion, were many from all parts of the world, and from a large number of men of world-wide reputation. Among his former students many names of men occupying a position of eminence may be found, and a list of these, numbering 621, was also appended to these testimonials; while at the same time a conjoint memorial was presented to the Curators of the University by 40 of the then leading obstetrical practitioners of Edinburgh, recommending him as "eminently qualified for the position." Dr Keiller was a voluminous and able contributor at the meetings of the Obstetrical, Medico-Chirurgical, and other societies of which he was a member. In the application made by him when a candidate for the Chair of Midwifery, as has been just alluded to, there is adduced a list of no fewer than 193 contributions and papers read by him before various medical and other societies. He was also the inventor of many obstetrical and other instruments and appliances, for some of which he was in some way or other far short of obtaining the credit he justly deserved, and which caused him, as well as his friends, no small amount of indignation and annoyance. These, as well as his contributions to medical literature, are in many cases admittedly valuable; and his opinion on several medico-legal questions, when he was more particularly devoted to medical jurisprudence, was considered highly important. He was an Hon. Fellow of the Obstetrical Society of London, and an Hon. Member of the Gynæcological Society of Boston, U.S.

In 1846 Dr Keiller married Miss Roy, daughter of Major Roy of the Bengal Service, and who survives him, along with one daughter and two sons. He was an active and useful member of the Kirk-Session of St Andrew's Parish Church in Edinburgh, and took much interest in many of its improvements. He was of an amiable and kindly disposition—in many ways, indeed, of an almost child-like simplicity. His genial and companionable spirit, with his varied sociable qualifications, made him a welcome guest at many of the medical festivities and symposia characteristic of Edinburgh. He was for very many years an esteemed member of the Medico-Chirurgical Club and of the Harveian Society—at both of which his gentle humour, his conviviality, and simple songs, added much to their enjoyment. On the Saturday evening preceding the day upon which he was struck down by paralysis, he was in good spirits, and had some friends spending the evening with him at North Berwick. Some days previously he had been suffering from a slight gouty attack. On the Sunday forenoon he was prostrated by an apoplectic shock, to which he succumbed eight days afterwards, retaining his senses and consciousness till within two days of his death. His funeral from St Andrew's Church to Warriston Cemetery was attended very largely, and included among its numbers most of the leading medical practitioners in town, including the Right Hon. the Lord Provost of Edinburgh, while many letters of regret were received from others who were unavoidably prevented from attending, owing to their distance, at that season, from town. He will be widely missed, as he is sincerely mourned by many. He was, as we have already said, one of the few remaining practitioners dating from the earlier years of the century; and at whose rapid, although, perhaps, natural enough removal, it may be said by most of us,

> "Men drop so fast, ere life's mid stage we tread,
> Few know so many friends alive,—as dead !"

THE LATE DEPUTY SURGEON-GENERAL CHARLES H. FASSON.

By the death of Mr Fasson, our great Hospital has lost a valued and most valuable official, the profession in Edinburgh has lost one of its senior members, and many of us a very dear personal friend. After a service in the Army Medical Department for twenty-seven years—in which, while attached to the 17th Foot and a Light Dragoon regiment, he saw much foreign service—he acted for some time as Registrar in the Herbert Hospital, Woolwich. In 1871 he received from the Managers of the Royal Infirmary the appointment to the important post of its Superintendent.

Mr Fasson's appointment came none too soon, and proved a great success. After his appointment the only feeling in the minds of the Board and the Staff was that of unmixed wonder how things went on at all before. During the period of extraordinary activity in removing the patients from the old hospital to the new, and during the laborious months when the new was being arranged for occupation, Mr Fasson's labours were incessant and his responsibility great. Aided by the Managers, who are a picked body of able and zealous men, the equipment of the new hospital and the transference of the patients and staff to the new one, were accomplished without a hitch. The new arrangements of wards, visiting rooms, and operating theatres might have, in less wise and capable hands, started many controversial points, but Mr Fasson, together with his excellent powers of organization, had the rare and marvellous faculty of succeeding in pleasing every one with whom he had to deal. The keenest controversialist was made to feel that Mr Fasson was absolutely fair, and had no other interest at heart than that of the great institution he loved so well. He took a great interest in the nursing department and in the comfort and adequate accommodation of the nursing staff. The New Home, now completed, was erected on his strong recommendation, and the furnishing of it occupied his attention during his latest days. His handsome face and military courtesy and punctuality were all in his favour. He was in the highest sense of the word a Christian gentleman, and by any one connected with the Hospital, from the fine old soldier-porters and servants, the nurses and the staff, his untimely death comes as a sudden and personal bereavment. We say untimely, for though Mr Fasson had passed the threescore and ten by a year, it was hard to realize that he was so old. Of late years he had seen much sorrow, and for some months had been out of health, but the attack of paralysis which was the beginning of the end had existed only a few weeks before a second closed the scene. Mr Fasson was twice a widower, and is survived by four sons and two daughters.

CORRESPONDENCE.

(*To the Editor of the Edinburgh Medical Journal.*)

Sir,—Having still a great objection to appear in print, I refrain from making any remarks upon the paper by Mr Towers-Smith on the Dietetic Treatment of Obesity, read before the Medico-Chirurgical Society of Edinburgh on the 22nd March. In case, however, it may be thought by any of those specially interested in the subject, and who had read the notes on the successful treatment of obesity published by Dr Allan Jamieson in the *Edinburgh Medical Journal* for December 1890, that the plan of treatment which I adopted at the suggestion of Dr G. W. Balfour, whom I consulted in June 1889, was injudicious, or might have proved a failure, seeing that it is so utterly at variance with that recommended by Mr Towers-Smith, I venture to furnish the following facts:—At the above date I weighed 22 stones. This morning my weight is 14 stones 10 lbs. My general health is remarkably good, considering my age. I eat a larger amount of fat than I did formerly, as I find it agrees well with me. Porridge taken with milk, and *nothing else*, for breakfast, I strongly advise for general use, but I cannot continue with it beyond a few days without a steady increase in my weight. Leeks, onions, and stewed celery I find the most suitable vegetables. I consider good whisky with plain cold water the best beverage. I never take bovril nor any clear soup, and as little fluid of any kind as possible. Unless fluids are taken in great moderation, I have always found it very difficult to reduce obesity in others.—Yours truly,

MATTHEW JAMES TURNBULL, M.D.

COLDSTREAM, 18*th October* 1892.

PUBLICATIONS RECEIVED.

An American Text-Book of Surgery for Practitioners and Students. Edited by WM. W. KEEN, M.D., etc., and J. W. WHITE, M.D., etc. W. B. Saunders, Philadelphia, 1892.

CHARLES ARTHUR,—Pharmacopœia of the Royal Infirmary of Edinburgh. James Thin, Edin., 1892.

British Guiana Medical Annual and Hospital Reports. Demerara, 1892.

C. GORDON BRODIE, F.R.C.S.,—Dissections Illustrated, Part I. Whittaker & Co., London and New York, 1892.

JAMES CARMICHAEL, M.D., etc.,—Disease in Children. Young J. Pentland, Edin., 1892.

Catechism Series. Chemistry, Part I., Inorganic. E. & S. Livingstone, Edin., 1892.

D. W. CATHELL, M.D.,—Book on the Physician Himself. 10th Edition. The F. A. Davis Co., Philadelphia, 1892.

ERNEST CLARKE, M.D., etc.,—Eyestrain. J & A. Churchill, London, 1892.

F. A. DIXEY, M.A., D.M.,—Epidemic Influenza. H. K. Lewis, London, 1892.

A. DUPRÉ, Ph.D., etc., and H. W. HAKE, etc.,—A Short Manual of Inorganic Chemistry. Charles Griffin, Lond., 1892.

E. H. FENWICK, F.R.C.S.,—Golden Rules of Surgical Practice. John Wright & Co. Bristol, 1892.

FRANK P. FOSTER, M.D.,—Illustrated Encyclopædic Medical Dictionary, Vols. I., II. Sampson Low, Marston, & Co., Lond., 1892.

From "Oesypum" to "Lanoline." Burroughs, Wellcome, & Co., London, 1892.

HERBERT JONES, D.P.H.,—Guide to the Examinations in Sanitary Science, Public Health, and State Medicine. Baillière, Tindall, & Cox, Lond., 1892.

JOHN M. KEATING, M.D., etc., and HENRY HAMILTON,—A New Pronouncing Dictionary of Medicine. Young J. Pentland, Edin., 1892.

Medical Communications of the Massachusetts Medical Society, Vol. 15, No 3. Boston, 1892.

DAVID NEWMAN, M.D., etc.,—Malignant Disease of the Throat and Nose. Young J. Pentland, Edin., 1892.

A. E. SANSOM, M.D.,—The Diagnosis of Diseases of the Heart and Thoracic Aorta. Charles Griffin & Co., London, 1892.

THOMAS D. SAVILL, M.D.,—On an Epidemic Skin Disease, resembling Eczema and Pityriasis Rubra. H. K. Lewis, Lond., 1892.

A. J. SMITH, M.D., and J. A. DAVIS, M.D.,—Napheys' Modern Therapeutics, Medical and Surgical. P. Blakiston, Son, & Co., Philadelphia, 1892.

E. H. STARLING, M.D.,—Elements of Human Physiology. J. & A. Churchill, London, 1892.

The Transactions of the Pathological Society of Manchester for 1891–92. John Heywood, Manchester, 1892.

Prof. TOMMASI-CRUDELI,—The Climate of Rome and the Roman Malaria. J. & A. Churchill, London, 1892.

Transactions of the Clinical Society of London, Vol. 25. Longmans, Green, & Co., London, 1892.

GRAHAM TRAVERS,—Mona Maclean: Medical Student, 3 vols. Wm. Blackwood & Sons, Edin., 1892.

WM. WHITLA, M.D.,—Elements of Pharmacy, Materia Medica, and Therapeutics. Henry Renshaw, London, 1892.

Part First.

ORIGINAL COMMUNICATIONS.

I.—CLINICAL LECTURE: ON A CASE OF RENAL AND CARDIAC DISEASE, WITH SPECIAL REFERENCE TO THE DIURNAL AND NOCTURNAL EXCRETION OF URINE.

By Alex. James, M.D., Physician to the Royal Infirmary.

J. W., æt. 39, a blacksmith, residing in Edinburgh, was admitted to Ward 30 on October 13th, 1892, and examined October 14th. His complaints were swelling in the legs, scrotum, abdomen, and face, and also shortness of breath, and he stated that his illness had commenced three months ago.

History:—Hereditary Tendencies.—His mother had died of some disease in which there was swelling of the legs. *Habits as to Food and Drink.*—Has always had plenty of good food, and is not a heavy drinker. *Surroundings.*—In consequence of his employment, is liable to physical strains, and when overheated is often exposed to draughts. *Previous Illnesses.*—Had measles and smallpox as a child; occasional slight rheumatic pains later.

Origin and Course of Present Illness.—About three months ago patient got a severe wetting one morning, but after drying himself at the furnace in his shop, continued to work all day. On retiring to rest that night he felt chilly, and felt also pains in his knees and ankles. Although he did not stop work, he says he has never felt well since then, and about four weeks after he noticed his ankles swollen at night. A week ago the swelling of the ankles became suddenly much worse, and he noticed also the swelling affecting the scrotum, abdomen, and face. The quantity of urine has markedly lessened during the last week, and he has begun to suffer from shortness of breath.

State on Admission—General nutrition and muscular development good. The only morbid appearance is the marked general dropsy.

Urinary System.—Micturition three or four times day and night; no pain. Urine—quantity (on day after admission), 23 oz.; sp. gr., 1022; acid, no blood, albumen in small quantity, epithelial and granular casts in large quantity.

Circulatory System: Subjective Phenomena.—Since the beginning of his illness, three months ago, he has noticed palpitation on exertion, and dyspnœa; no pain. On physical examination the heart was found enlarged. The apex beat was between the seventh and eighth ribs, 1¾ in. to left of nipple line, and there was marked epigastric pulsation. The right border of the heart at the level of the fourth costal cartilage was made out by percussion 1 in. to the right of the right border of the sternum. On auscultation, a faint systolic murmur was made out at the mitral area, and equally faint systolic and diastolic murmurs at the aortic. Accompanied by the faint diastolic murmurs at the aortic area the second sound was heard accentuated. Pulse-rate, 108, regular in time and strength; its beat was forcible, but a very slight water hammer character was perceptible. The walls of the radial artery were thickened and hard.

Respiratory System.—Respirations, 24 per min.; no pain; no cough. On physical examination the chest was found emphysematous, and impairment of the percussion note was made out at both bases posteriorly, especially on the left side. On auscultation, some weakening of the respiratory murmur, with coarse crepitation, was found at both bases, mostly over the left.

Alimentary System.—Appetite and digestion fairly good; no thirst; bowels regular; tongue rather flabby and furred. On physical examination of the abdomen it was found to be enlarged, measuring at the level of the umbilicus 38 in. By percussion in varying positions the presence of ascites was ascertained. The liver was found enlarged, its vertical dulness in the right nipple line amounting to 9½ in. The splenic dulness could not be precisely ascertained, owing to the dulness at the left base, but the organ did not appear to be enlarged.

Nervous system and *integumentary system* are practically normal, except that for some weeks his sleep has been somewhat disturbed, and that œdema of the skin and subcutaneous tissue is markedly present.

In this case the history of a severe wetting, the occurrence of rheumatic symptoms, and the supervention after some weeks of dropsy of legs, genitals, abdomen, lung bases, and face, with diminution in the quantity of the urine, and the presence in it of albumen and casts, pointed to an acute nephritis. But we had found also affecting the patient emphysema, a greatly dilated and hypertrophied heart with mitral, and probably also aortic valvular disease, and atheromatous arteries. All these latter symptoms might reasonably be ascribed to the single fact of his being a blacksmith of about 40 years of age.

We remembered also that the emphysema and the cardiac and vascular conditions were certainly of some duration, and that although on inquiry we could not elicit evidence that symptoms showing weakened action of the heart had existed, we believed that there must have been some tendency to backward pressure, and that this in the case of the kidneys meant an increased liability to acute nephritic attacks.

But the question occurred to us, Had there been previously any possibility of the existence of cirrhotic kidneys? We knew that this morbid condition is often associated with the cardiac and vascular changes found in this patient, and that often, too, the renal condition is the primary one. Are we to suppose, then, that this condition of kidney has been present, and has taken its share in inducing the cardiac and vascular changes which we have found, or are we to suppose that in connexion with his circulatory system we are to recognise the foundations of the whole mischief? At the time when the patient came into hospital we were inclined to take this latter view; we felt sure that the big heart and hard arteries had been there for some considerable time, we could not say the same value of the renal trouble.

But I wish now to consider with you more in detail the reasons for and against this opinion, because such a consideration will, in the first place, show you that we cannot be so absolutely sure as we might think; and, in the second place, because it may help you to form an opinion in other cases of a similar kind. When the symptoms of cirrhotic kidneys are well marked, the condition is very easily recognised; but the diagnosis is often difficult in the earlier stages, and, of course, you want to be able to diagnose it in as early a stage as possible.

From the etiological standpoint nothing definite can be elicited. He is at the age about which cirrhotic kidney becomes common; he has a history of hard work and of exposure, and of rheumatism. But all these, it may be said, apply as etiological factors as cogently to the state of his circulatory system as to his renal organs. Prolonged muscular exertion leads to dilatation and hypertrophy of the left ventricle and sclerosed arteries, as well as does contracting kidneys. It may be asked here, to what extent can the aortic and mitral valvular disease of themselves account for the large heart? To this I would answer that, as indicated mainly by the pulse, these lesions are slight, so that for an explanation of this we must look rather to increased arterial pressure.

Then as regards symptoms, whilst dyspnœa, palpitation, and disturbed sleep are symptoms of cirrhotic Bright's disease, their occurrence in this case may well be explained in other ways. The hard pulse, so characteristic of the kidney trouble, is slightly modified in this case as the result of the valvular lesions, but still the heart beat is strong. With the rigid artery, however, it might easily be accounted for on the theory of a primary cardiac and vascular morbid condition. Headaches, giddiness, and disturbed digestion, all of which are common symptoms of cirrhotic kidney, he has not complained of, and had he done so they also might readily be explained by the cardiac condition. The liver is markedly enlarged, evidently from congestion; and whilst the consideration of its size makes us wonder that symptoms of disturbed digestion have not been more prominent, it shows that there must have been great backward pressure, and that therefore, the kidneys being similarly congested would be very liable to an attack of inflammation. Failing vision and the characteristic changes in the retina he presents no evidence of. In the absence, therefore, of any of the general symptoms of cirrhotic kidney, we pass now to a more detailed consideration of the urinary system itself, and to this let me now direct your attention.

We first inquired as to the quantity of urine which he had been passing previous to his illness, and he stated that he had never noticed any increase in its quantity or paleness in its appearance, and what is, as we shall see, of great consequence, that he never had to get up to micturate during the night. We also made out that he had never noticed any puffiness about his eyes in the mornings previous to his acute attack. We therefore, as already stated, were inclined to believe that his attack was one of acute inflammation, occurring in a patient with practically normal though congested kidneys, and valvular and arterial disease. But we made up our minds to watch him during the satisfactory recovery which we anticipated would occur, and to see if we could make ourselves more certain of his renal condition as time went on. We advised rest in bed, plenty of hot bottles and blankets to favour the action of the skin, a non-nitrogenous diet, attention to the action of the bowels, and a mixture of quinine and iron, with a small dose of digitalis thrice daily.

At once improvement began to show itself, with rapid increase in the quantity of urine, the dropsy disappeared, and the albumen and blood after a few days could no longer be detected. But it is to the condition of the urine that I now wish to direct your attention, and the points to which I wish specially to direct your attention are shown in the Tables.

Table I. shows the total quantity of urine passed since his admission each day, and since October 22nd the proportion passed during the day and night. The day urine is the quantity passed between 8.30 A.M. and 8.30 P.M., and includes the quantity passed before the patients are supposed to be going to sleep; the night urine is the quantity passed between 8.30 P.M. and 8.30 A.M., and includes the quantity passed before the ward is cleaned in the morning.

TABLE I.

	Total.	Day.	Night.
Oct. 14,	25		
15,	33		
16,	42		
17,	74		
18,	129		
19,	104		
20,	117		
21,	149	55	94
22,	110	38	72
23,	93	26	69
24,	80	35	45
Oct. 25,	66	18	48
26,	65	21	44
27,	61	32	29
28,	46	24	22
29,	69	29	40
30,	65	21	44
31,	41	12	29
Nov. 1,	57	28	29
2,	56	24	32
3,	49	24	25

Table II. shows for the five days ending October 26, in addition to the quantity of day and night urines, the specific gravity and the proportion and amount of urea. For the analysis and construction of this Table I have to thank Dr Boyd.

TABLE II.

Date.	Amount—Day.		Amount—Night.		Urea—Day Percentage.	Urea—Night Percentage.	Specific Gravity.		Total Urea in Grammes.	
	Ounces.	cc.	Ounces.	cc.			Day.	Night	Day.	Night.
Oct.										
22	38	1078	72	2044	1·4	·9	1020	1013	15·06	18·39
23	26	738	69	1902	2·4	1·2	1030	1020	17·71	22·82
24	35	993	45	1277	1·6	1·4	1022	1020	15·88	17·87
25	18	511	48	1362	1·9	1·85	1028	1022	9·70	24·59
26	21	596	44	1249	2·4	2·85	1030	1030	14·30	35·59

From these Tables it will be seen—(1.) That the total quantity of urine passed by this patient ran up rapidly after his admission, and is now returning to what we may consider the normal amount. (2.) That the specific gravity and amount of urea are keeping high —indeed, rather above the normal. Neither of these, it is evident, indicate that cirrhotic kidneys have pre-existed or exist in this man; for, of course, were this so, the quantity of urine would, we should expect, have remained high and the specific gravity low, whilst the urea—though as regards total quantity perhaps equalling the average—would, corresponding to the increased amount of water, have been proportionately less than the average.

But notice that (3) the amount of the night urine is nearly always higher than that of the day. This is, I believe, an important point; and because, in my opinion, a sufficient amount of importance has not been directed to it in medical teaching, I propose to devote a little time to its consideration. My attention was directed to it some years ago when working as assistant physician in Professor Greenfield's wards, and my friend Dr Claud Wilson, who was then resident in Wards 23 and 24, made some observations in connexion with it which were published in the *Lancet* of June 29th, 1889.

In health the proportion of urine passed during the day hours is very much greater than that passed during the night. Roberts, for example, with a total daily quantity of 30 ozs. 6 drs. of urine, gives for the sixteen hours of waking 30 ozs. 2 drs., and for the eight hours of sleep only 4 drs. This gives as the amount of the secretion per hour, for the day a little less than 2 ozs., and for the night about ½ dr., or splitting the total quantity into two, one representing the amount passed between 8 A.M. and 8 P.M., and the other the amount passed between 8 P.M. and 8 A.M., this would give for the day quantity about 27 ozs. and for the night about 3½ ozs.

Remembering that the quantity of urine varies greatly in health and disease in different individuals, and also that our patient is lying in bed all day as well as all night, we cannot yet fail to be struck by the greatly altered ratio of the nocturnal to the diurnal excretion. On only one occasion is the nocturnal amount less than equal to the diurnal, in most cases it is much greater, on two occasions it is more than twice as much. Further, although the total amount of urine is diminishing, the excessive quantity of night urine still seems to hold.

Dr Claud Wilson, from his observations, came to the following conclusions as regards the proportionate quantity of diurnal and nocturnal secretion—"that in debility, however produced, the diurnal and nocturnal rates approximate to each other, that this is specially marked in cases of cardiac disease, and more so still in organic disease of the kidney. One case is especially interesting, in which the approximation between the day and night rates of excretion was sufficient to make me strongly suspect organic (waxy) disease of the kidney, though there was no noticeable polyuria nor any albumen. This patient died two months later, when he was found to have extensive waxy disease of both kidneys as well as of other organs, although no albumen had been detected in his urine until a week before his death, and then only a trace."

With what Dr Wilson has said I can certainly agree, with one little qualification which I shall mention directly. I have known of cases where contracting kidney was diagnosed mainly by noting the altered diurnal and nocturnal excretion rate, and I have known of cases where the diagnosis was missed by failing to inquire into this. The little qualification which I referred to was as regards the altered rate in cardiac cases. I think that the cardiac cases to which Dr Wilson referred were cases like that of the patient whom we are now considering, and that in them, as in this patient, we cannot be sure that some renal mischief was not existent. Let me therefore impress upon you the importance of inquiring as to the diurnal and nocturnal excretion rate. Of course alterations can occur in other morbid conditions, and even occasionally in health, but when it occurs habitually, and cannot be explained as due to other morbid causes, it may enable you earlier than any other symptom to contemplate the onset of organic renal disease.

To revert now to our patient W. He is going on favourably; he is now allowed a certain proportion of nitrogenous food, and in a few days he will, taking every precaution by clothing, etc., to protect him from cold, be allowed to get up and go about. We shall from time to time, however, make inquiries as regards his diurnal and nocturnal rates of urine excretion. If with a total quantity of 40 or 50 ozs. of urine we find that the nocturnal proportion shows a marked diminution, this will certainly influence us to believe that the kidneys have as yet suffered no fibroid change.

We shall also look to the specific gravity of the urine. Of course, if any such change is going on we expect that the specific gravity will diminish, but we shall note specially if this diminishing is more marked in the case of the night urine. We shall also examine for casts. Up till now hyaline casts are still being detected from time to time.

And now, can any reason be given for the increased flow of urine during the night found in this and other such cases? I believe that it can, and to better explain it I would ask you to remember another feature of chronic Bright's disease, and that is the dropsy.

Corresponding with the large flow of urine the dropsy is slight, but what is of special importance is that it is marked about the eyes, and mostly in the mornings. That is to say, the dropsy about the eyes is occurring during the night when the patient is secreting the largest proportionate amount of urine. Further, if a patient with contracting kidneys falls asleep during the day, let us say in his chair or on the sofa, he will usually notice that his eyes are puffy when he wakes, and if you inquire you will often find evidence that during his sleep he has been secreting a considerable amount of urine.

The explanation of all this lies, I think, in the theory that along with the lowered metabolism of the night hours or hours of sleep, there is a lessened lymphatic absorption. Without, in the light of Heidenhain's recent work,[1] accepting in its entirety the Ludwig theory, viz., that the urine secretion is in part a process of filtration and in part of osmosis, we may yet believe that between the filtered fluid in the tubules and the contents of the lymph spaces in the connective tissue of the kidney, a certain amount of interchange will occur. At the time when lymphatic absorption is active this may, as Ludwig states, result in a diminution in the quantity, and possibly also in an increase in the specific gravity of the urine, that is to say, in its concentration. When, however, the activity of lymphatic absorption is lessened, a larger quantity of urine with possibly lowered specific gravity will flow downwards into the bladder. Similarly in the tissues generally, with lessened lymphatic absorption, these will contain a greater proportionate amount of fluid. Thus, in a locality where the tissues are lax, as in and about the eyelids, there will be an œdematous condition, which will disappear when the absorption process is more active.

Hence there will be remarked œdema about the eyes, most noticeable when the patient awakes in the morning, associated with a nocturnal flow of urine increased proportionately to the diurnal.

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[1] "Versuche und fragen zur Lehre von der Lymphbildung." Heidenhain, *Archiv f. d. ges. Phys.*, Bd. xlix.

Also a lessening of this œdema as the day wears on, associated with a diurnal flow of urine diminished proportionately to the nocturnal.

Of course, another explanation of this dropsy which has been brought forward is gravity and the position of the patient during the night.[1] Were gravity, however, the main cause, we should expect at the same time a corresponding dropsy of the ankles at night as the result of the patient walking about during the day. This, however, in cases of contracting kidneys such as we are referring to, we certainly do not get.

II.—EXCISION OR ARTHRECTOMY OF THE KNEE-JOINT.

By A. G. Miller, M.D., F.R.C.S.E., Surgeon to the Edinburgh Royal Infirmary.

(*Read before the Medico-Chirurgical Society of Edinburgh, 2nd November* 1892.)

In this paper the words excision and arthrectomy are used synonymously, because they literally mean the same thing. I would reserve the term erasion for the operation of removing only synovial disease and leaving the articular surfaces of the femur and tibia. What I understand by the terms excision and arthrectomy is that operation, exclusive of amputation, by which all the diseased tissues are removed with the best possible result to the patient in the shape of a useful limb.

Three years ago I published a paper entitled, "Two Suggestions for Improving the Operation of Excision of the Knee-joint for Strumous Disease," and recorded eighteen cases.[2] I have now operated on thirty cases, and wish to give my further experience of the method of operation which I have devised. The suggestions which I made were the following:—

"More than twenty years ago, when I was house-surgeon to the late Professor James Spence, I learned that to get a satisfactory result in strumous joints it is necessary to remove the whole of the diseased synovial membrane. To carry out this principle, Professor Spence was in the habit, when operating on the elbow, of cutting away as much of the synovial membrane as he could get with scissors. In operating on the knee he adopted a more thorough procedure, which many members of this Society may remember. This was, after reflecting upwards a semilunar flap of skin, to make a circular sweep with his knife round, and at some distance from the patella, and thus remove in one mass that bone and a considerable portion of the thickened and diseased synovial

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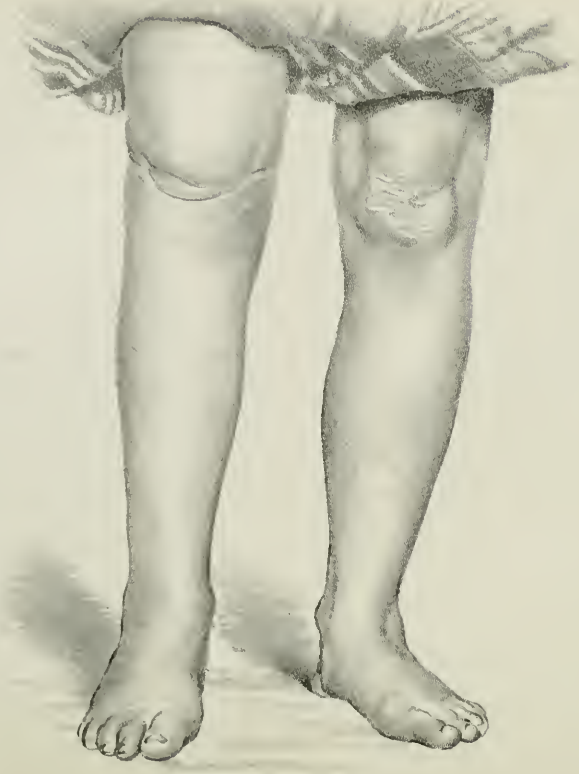
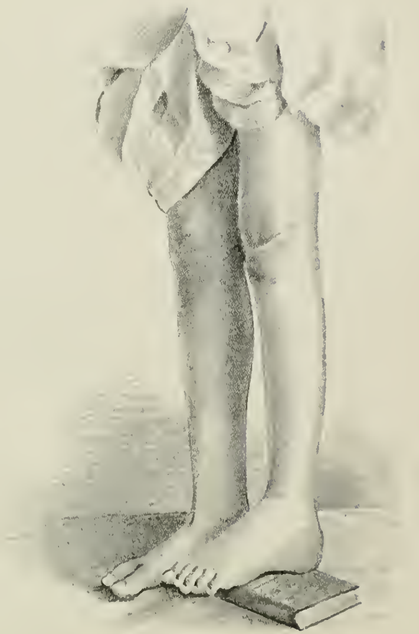
[1] *L'albuminurie.* Lecorché et Talamon. Paris, 1888.

[2] Read before the Edinburgh Medico-Chirurgical Society, 15th May 1889, and published in the *Edinburgh Medical Journal* for July 1889.



Case 23.



Case 26.

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membrane. This procedure strongly recommended itself to me, and I think that I have even improved on it. My method is as follows:—After reflecting a semilunar flap of skin upwards, well above the patella, I cut through the tendon of the extensor of the thigh a little above the patella, and also through the fibres of the vasti, internal and external. In this way the synovial membrane is exposed, and it is then quite easy to push up the muscular substance, and to draw down the thickened synovial membrane, which comes readily off the periosteum, and has then to be cut at its attachment round the articular surface of the femur. In this way four-fifths or thereabouts of the synovial membrane is removed in one mass with the patella imbedded in it. Those portions of the membrane that cover the ligaments are then removed by the use of the Lister sharp spoon. The ligaments should be scraped till they appear clean and white. They are then cut through to permit of complete flexion of the joint, and the operation is completed by the removal of a sufficient amount of bone.

"There is another procedure which I would recommend. In the old days, when a house-surgeon, I was much troubled, in dressing knee-excision cases, with the skin which lay in a loose, redundant, and troublesome manner in folds over the approximated bones. To remove this redundant skin I act as follows:—After making an incision from behind the one condyle to behind the other, across the front of the knee and at the level of the top of the tibia, I make another cut, commencing and terminating at the same points, but over the centre of the patella. These two incisions include an elliptical portion of skin, which is left attached, and the skin is dissected up over the synovial membrane from the upper cut as described above.

"For this minor procedure I claim two advantages—1. Redundant and unnecessary skin is removed, which makes the limb look neater afterwards. (See Plates.) 2. The flap of skin is more easily dissected upwards off the synovial membrane, since it is about an inch shorter than the ordinary flap made by Jones, Fergusson, and Watson, whose method of operating I have followed with the above modifications."

1. As to the removal of an elliptical portion of skin from the front of the knee, I have never found it cause the slightest difficulty in the approximation of the cut margins of skin, or in the healing of the wound. On the contrary, the skin edges come together more easily and neatly, and, as a rule, heal by the first intention, except at the ends, where drainage is provided.

After the publication of my paper in 1889, a friend kindly drew my attention to a *Treatise on Excision of the Joints*, by the late Mr Syme, in which he describes a method of making the incisions similar to that which I advocate. Mr Syme's words (page

133) are—"The best plan, I think, is to make two semilunar incisions across the fore part of the joint, extending from one lateral ligament to the other, meeting at their extremities, and including the patella between them. Very free room will thus be afforded, which may be easily enlarged, if required, by cutting longitudinally at the point of union of the transverse incisions."

It has been a matter of great satisfaction to me to find that I was treading in the footsteps of Mr Syme when I thought of the double elliptical incision. The main difference between my method and Mr Syme's is that my first incision comes lower down, and thus avoids the objection of the skin cicatrix lying immediately over the line of junction of the bones. The incision is practically that introduced by Fergusson and Jones, and which is generally employed in this country, I think, under the name of the long semilunar or U-shaped incision, with the addition of a second, transverse cut, higher up, these being so made as to isolate a small portion of skin. It is therefore practically that of Mr Syme with the lateral incisions which he suggests added. The first cut is from behind the one condyle to a corresponding point on the opposite side, coming well down on to the head of the tibia. The second cut is across the patella.

One of the most important points in arthrectomy is to get good access to the parts to be removed. The above incisions do this thoroughly. The next thing is to secure efficient drainage, and this is also amply provided for if the first incision be begun and ended well behind the condyles.

2. The other point in my operation is by far the more important, providing, as it does, for the thorough removal of all diseased textures.

In tubercular disease of a joint the tissues affected are principally the bones and the synovial membrane. To remove one of these and leave the other would be a grave mistake.

When the operation was first introduced the practice was to remove bone only, as that was looked upon as the chief diseased part. Taking away only a certain amount of femur and tibia was advocated by the best surgeons. Now, however, it is universally recognised that the proper thing to do in every case is to remove all the disease.

We know that tubercular foci are present not only in caseating centres in the ends of the bones, but also in the thickened synovial membrane, and also in very advanced cases in other parts surrounding, especially in the cellular connective tissue.

In the majority of cases of tubercular knee-joints that I have met with the synovial membrane has been diseased, and has seemed usually to be the part earliest and most affected. If, therefore, in such cases an operation be performed which does not provide for the removal of the whole of the synovial membrane, there is considerable risk of tubercular tissue being left behind to form a centre for reproduction of disease.

In reading the opinions of other surgeons in regard to the removal of diseased synovial membrane, I find that many recommend the laborious and most unsatisfactory process of dissecting out such portions as can be got at by forceps and knife or scissors.

The method I recommend provides for the removal of the greater part of the synovial membrane of the knee in one piece (which can be readily done on account of its thickened condition), and for the systematic scraping away of every remaining portion in a manner which ought to be both thorough and satisfactory.

The removal of the patella is not an object in my operation, but is a necessary part, for it comes away in the centre of the synovial mass. I do not consider the removal of the patella a disadvantage; because, (1), it is often diseased; and, (2), if the resulting limb be thoroughly anchylosed and rigid the function of the patella is gone, and the straight limb looks neater without it.

This leads me to speak of the removal of bone and the question of anchylosis.

First, as to anchylosis. Is a stiff limb a disadvantage? Of course it is not so convenient as a perfectly normal one. But that it is not very inconvenient is proved to me by the experience of my patients. One whom I have shown to this Society is as active as a cat. (Case 4). Several of them walk with hardly any perceptible limp, and can sit down and rise up without any inconvenience. One woman (Case 23) told me she scrubbed the floor of her house regularly, and managed very well. Her leg is quite stiff but slightly bent.

I have had very little experience of a movable joint. In one of my cases (Case 11) the limb did not become rigid. The resulting joint was so inconvenient that the patient requested a second operation to have the limb stiffened. She never could walk without a supporting splint, because the new joint was too accommodating, and bent any way.

I have never aimed at obtaining a movable joint, because I have never considered that it was an advantage. I have always thought that my duty was to provide for a limb that should be a suitable support. When I see, from the success of others, that an excised knee can be both movable and a reliable support, then I may change my mind and my practice.

In regard to the amount of bone that should be removed, I am inclined to act with a free hand usually. I have so frequently found caseating centres after section of bone (that could not have been diagnosed previously) that I do not think it is a safe procedure to saw off as little as possible, still less to leave the articular surfaces entire. Indeed, I have often required to apply the saw again or to gouge out diseased foci. As to wiring or pegging the bones together, I have tried several methods, and I am not prepared to give my unqualified adhesion to any.

I would now discuss the question—"In what cases is arthrectomy most suitable?"

Dr Heron Watson, in his able work on *Excision of the Knee*, published in 1867, says (page 70) that cases in which the disease is mostly in the synovial membrane are not suitable. This would exclude most of the cases with which I have had to do. But Dr Watson at that time removed only bone. I consider, however, that the operation is well suited for cases of synovial disease as well as those in which the bones are mostly affected and those in which there is anchylosis in a bad position. I have had good results in all such cases.

I think that the best way to answer this question is to decide the class of cases in which the operation is inappropriate.

1. I would not operate on very young children, because the limb resulting will not be useful enough. The limb operated on does not grow equally with the healthy one, not solely because of the operation, but because of the disease which necessitates the operation. Every one knows how shrunken and atrophic a limb becomes in which there has been strumous disease (even when recovery has taken place). To excise an infant's knee, then, would be to give the child a mere appendage that would be of less utility than a stump. Amputation is better if erasion should be impossible.

2. I would not advise excision in a case in which a large amount of bone (tibia or femur) would have to be removed, especially if the patient was young. I would prefer amputation.

3. I would not expect a good result in cases in which there is much disease of the soft parts, for I would despair of being able to remove all tubercular foci. In other words, I would expect in such circumstances recurrence of the disease and necessity for amputation. This occurred in four of my cases, but in every instance I excised against my conviction and advice.

4. Of course, one would never think of preferring arthrectomy to amputation in a case in which there was any tubercular disease elsewhere. For the comparatively long period during which the patient is obliged to lie in bed, and the greater possibility of the wound not doing well, are very strong arguments against the former operation, which in such cases is the more severe and dangerous of the two.

5. I do not like to operate on a person above the prime of life. One of my oldest patients was 42 (Case 12). His knee took a very long time to become firm—much longer than any of the others. A woman aged 43 (Case 25) (she gave that as her age, but I believe she was 10 years older) died from exhaustion and fatty degeneration of internal organs. On the other hand, a man aged 57 made a good recovery—his joint, however, was not supposed to be tubercular, but syphilitic. Amputation takes less time than arthrectomy.

6. I look upon sepsis as a contra-indication to arthrectomy only inasmuch as it prevents early or immediate union. I can imagine certain cases in which it might turn the balance in favour of amputation.

Recapitulation of Method of Procedure.

1. Incision from behind and above one condyle of femur to corresponding point of opposite side, brought down to near tubercle of tibia with a well-rounded sweep. Second cut straight across about middle of patella.

2. Flap of skin from upper incision (that across patella) reflected up till muscular fibres of vasti seen. These carefully cut through. Tendon of rectus cut very carefully as it lies embedded in the thickened synovial membrane. Then muscles and tendons raised with handle of knife and fingers till upper border of thickened synovial membrane defined. Diseased mass of synovial membrane then dissected downwards off femur, mainly with handle of knife and fingers, till attachment at articular surface of femur is reached and cut through. Lateral attachments cut. Last of all, attachment to tibia and ligamentum patellæ cut through, and thus anterior portion of diseased synovial membrane removed *en masse*, with patella in centre and eliptical portion of skin attached.

3. Scrape away all remaining visible synovial membrane in detail, from lateral ligaments and anterior crucial ligament—joint being flexed for this purpose. Semilunar cartilages removed, and joint made clean so far. Then lateral and anterior crucial ligaments cut, and the posterior ligaments scraped and cleaned thoroughly. All ligaments scraped when *in situ* and tense, or cut away.

4. Enough of bone removed from femur and tibia to thoroughly open the cancellated tissue to inspection, and all osseous tubercular foci dealt with.

5. After approximation of bones, tendon of quadriceps may be stitched to remains of ligamentum patellæ, and then skin flap brought down and stitched. Drainage provided from posterior ends of incision.

Table of Cases operated on by Mr A. G. Miller.

Name.	Age.	Date of Operation.	Date of Discharge.	Result.	Disease.
1. Donald M.	23.	Jan. 19, 1885.	May 1, 1885.	Good.	Synovial T.
2. Jessie B.	25.	Mar. 19, 1886.	May 9, 1886.	Good.	Bone T.
3. Jane A. S.	26.	June 7, 1886.	Nov. 18, 1886.	Good.	Synovial T.
4. John S.	17.	June 25, 1886.	Aug. 20, 1886.	Very good.	Synovial and Bone T.
5. Isabella M.	18.	Aug. 12, 1886.	Oct. 29, 1886.	Amputated Sept. 23, 1886; return in cellular tissue.	Extensive Tubercular Disease.
6. Kate B.	18.	Aug. 16, 1886.	Nov. 17, 1886.	Good.	Synovial T.
7. Isaac B.	23.	Aug. 27, 1886.	Nov. 22, 1886.	Very good.	Synovial T.
8. Marjory D.	13.	Mar. 8, 1887.	May 18, 1887.	Good.	Synovial T.
9. William C.	20.	Sept. 6, 1887.	Dec. 8, 1887.	Amputated Nov. 10, 1887; return in bone and soft parts.	Extensive Tubercular Disease.
10. George R.	30.	Sept. 27, 1887.	Nov. 30, 1887.	Good.	Synovial T.
11. Mary F.	22.	Oct. 27, 1887.	Jan. 4, 1888.		
2nd operation.		Mar. 7, 1890.	May 2, 1890.	Very good.	Synovial T.
12. John M.	42.	Feb. 21, 1888.	Jan. 19, 1889.	Fair. Died Dec. 1891 of Phthisis.	Extensive Tubercular Disease.
13. Jemima C.	11.	April 20, 1888.	May 17, 1888.	Good.	Synovial T.
14. Janet M.	12.	June 22, 1888.	July 28, 1888.	Good.	Synovial T.
15. David S.	7.	June 26, 1888.	Sept. 1, 1888. Seen June 18, 1890.	Very good.	Synovial T.
16. Mrs C.	30.	Dec. 11, 1888.	Feb. 6, 1889.	Good.	Synovial T.
17. James L.	19.	Feb. 19, 1889.	June 19, 1889.	Amputated May 21, 1889; return in cellular tissue.	Extensive
18. William B.	19.	Feb. 26, 1889.	April 4, 1889.	Very good.	Anchylosis after Tubercular Disease.
19. George P.	12.	June 25, 1889.	July 7, 1891.	Amputated May 29, 1891, for recurrence in bone and soft parts.	Extensive Tubercular Disease.
20. Richard T.	57.	Aug. 1, 1889.	Sept. 28, 1889.	Good.	Syphilitic.
21. James D.	21.	Aug. 9, 1889.	Sept. 26, 1889.	Good, slight motion.	Anchylosis after Tubercular Disease.
22. Lizzie T.	22.	Nov. 12, 1889.	Mar. 5, 1890.	Good.	Anchylosis and genu valgum.
23. Mrs L.	30.	Dec. 19, 1889.	Feb. 12, 1890.	Good, seen Oct. 12, 1892.	Bone T.
24. Maggie T.	16.	May 2, 1890.	July 29, 1890.	Good.	Synovial and Bone T.
25. Mrs F.	43?	May 20, 1890.		Died May 24, 1890, from fatty heart and chloroform sickness.	Chronic Rheumatism and Tubercle.
26. Lizzie A.	15.	Oct. 21, 1890.	Dec. 30, 1890.	Good.	Synovial.
27. Annie W.	10.	Oct. 16, 1891.	Jan. 20, 1892.	Recurrence in Tibia. Quite healed Mar. 14, 1892.	Synovial and Bone T.
28. Mrs L.	37.	Oct. 30, 1891.	Jan. 23, 1892.	Return of Disease.	Bone T. extensive.
29. William M.	8.	Jan. 25, 1892.	April 23, 1892.	Wound healed, limb stiff, plaster case on.	Synovial T.
30. William D.	5.	June 24, 1892.	Aug. 5, 1892.	Wound healed, limb stiff, plaster case on.	Synovial T. abscess in Tibia.

Patient number 24 was shown to the Society, when several members remarked on the excellence of the limb operated on.

III.—NOTES FROM THE SECOND INTERNATIONAL CONGRESS OF DERMATOLOGY, Held at Vienna, September 5th to 10th, 1892.

By W. Allan Jamieson, M.D., F.R.C.P. Ed., Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

There was an obvious appropriateness in the selection of the Austrian capital as the place of meeting of the Second International Congress of Dermatology. Paris may be said to have been the cradle of the modern science of cutaneous medicine, and the Hospital of Saint-Louis is perhaps at present unrivalled as a place of study in this department; it was therefore the most befitting spot for the inauguration of such gatherings. But if Paris can claim the prestige of having directed medical thought in that direction, it was the genius of Ferdinand von Hebra which guided it in an accurate course, and alike in its wealth of material and in the distinction and energy of its staff of professors and their assistants, Vienna can still boast of a foremost position.

The Congress promised at one time to be representative of all nationalities, but the Fates were against it. Cholera by its appearance on the seaboard of Germany and in France threatened to place so many difficulties in the way of those proceeding towards Austria, that a not inconsiderable number of those counted on failed to come. Thus America was not represented by any dermatologist. Berlin even by few, while from Paris and Italy the numbers were smaller than had been hoped. Great Britain, however, contributed her fair quota of delegates, as the names of Hutchinson, Malcolm Morris, Colcott Fox, Radcliffe Crocker, Pringle, Brooke, and some others, will prove.

The ostensible objects of the Congress may be said to have been fourfold. The discussion of certain fixed questions held to be of paramount interest at the present time; the reading of papers bearing more or less closely on those, or on allied or quite distinct subjects; the observation of rare or interesting cases and modes of treatment; and, lastly, the social element. This was undoubtedly the projected arrangement in order of importance; but looking back on the Congress as a thing of the past, one must admit that numerously attended as the meetings were, engrossing as were the topics chosen for consideration, and remarkable as were many of the cases presented for observation, the convivial element is certainly the one which has left behind it the most vivid impression. At no previous Congress, perhaps, has this come so prominently to the front, whether the public entertainments, to which all the enrolled members were invited, are considered, or those private hospitalities to which only a select few had the entrée, are taken into account. Those who had the pleasure of being admitted into this sacred and inner circle will not readily forget the kindness received, the heartiness of the greeting, or the happiness enjoyed.

The Congress was formally opened by Professor Kaposi at nine o'clock on Monday the 5th of September in the large hall of the University. In his address he offered a cordial welcome to those who had come, while he regretted that the pestilence which had appeared in Europe had reduced the numbers of representatives. Then he spoke in high terms of the Congress of 1889 held in Paris, and paid a tribute to the memory of his renowned father-in-law, Ferdinand von Hebra. He contrasted the recently established German Dermatological Society with that founded shortly before in France, and then alluded to the museum of the Congress which, though small, would be inspected with much interest and profit, and reflected great credit on Dr Hans von Hebra, who had carried out its arrangement. He remarked that the Congress was graced by the presence of the heads of the University and of the civic authority, while the programme laid down contained a suitable mixture of work and relaxation. The Burgomeister and the Rector Magnificus of the University spoke cordially on behalf of their respective bodies, and Professor Neumann added a few words in name of the Vienna Dermatological Association. Dr Riehl then nominated the organisation committee and heads of departments. Dr Veiel of Cannstadt proposed Professor Kaposi as President and named the bureau, and then the veteran Hardy who, octogenarian as he is, looked as fresh and comported himself as actively as the youngest there, was unanimously chosen, amid loud acclamations, as Honorary President. Hardy then having taken his seat, delivered an address which treated of the advances made in dermatology in recent years. It was, perhaps, a little too shadowy in outline, yet it bore evidence to the sincere attachment which he still had for cutaneous disorders, though in consequence of the faulty system which prevails in Paris, a system of promotion against which all complain, yet are apparently powerless to alter, he had long ago ceased to be a professor of the branch of diseases of the skin.

Leprosy was the first of the topics discussed. Dr Arning of Hamburg read the opening paper. The following points were laid down for consideration, but the speakers did not adhere closely to this limitation. 1. Leprosy is a chronic infectious disease, limited to mankind, and is conveyed directly and indirectly by the bacillus lepræ. 2. The importance of this disease for Europe must not be underrated. 3. Besides the old European seats of leprosy, new endemic centres have recently developed in this Continent. 4. The conditions under which leprosy holds its old ground and develops new endemic foci are not yet clearly understood. Filth and poverty can no more be made exclusively responsible than a particular kind of food. 5. Old European centres must be strictly controlled and watched in regard to nationality,increase and decrease of cases, and peripheral spread of disease-foci. 6. Leprous patients coming from European or foreign centres of infection, and settling in non-leprous parts of Europe, must be registered by the sanitary authorities, and controlled as to their nationality, household, and changes of residence. Such registration should be conducted on international principles. 7. Should the disease have established a new footing of endemic type anywhere in Europe, then, but not till then, strict segregation in asylums or colonies should at once be resorted to. A similar segregation must be kept up in all old centres of leprosy. 8. By such measures a reduction in the numbers of lepers can be attained, and the disease eventually be stamped out. Arning remarked that a wave of leprosy passed over Europe between the eleventh and fifteenth centuries, then gradually and in many countries wholly subsided. It would almost seem as if after a long period of quiescence it is again reviving in Russia and Spain. Neumann stated that in Bosnia, where in the year 1890 he had investigated into the causation of some cases of the disease, he found it could have no connexion with the use of fish, since the patients, in accordance with the tenets of their religion, partook of a purely vegetable diet. Campana of Genoa added somewhat to the difficulties which environed the complaint by describing a new micro-organism resembling the bacillus lepræ. On Tuesday, Late Syphilis was handled, the chair being appropriately occupied by Mr Jonathan Hutchinson, one of the vice-presidents. On the whole, little of any moment was brought forward which is not already known. Mr Hutchinson said that though a strong advocate for the administration of mercury in acquired syphilis in the adult, he was not so certain of its necessity in the case of hereditary syphilis in infants. He thought that the symptoms frequently disappeared quite as well without it, while those treated in infancy by mercury did not, in his experience, enjoy any greater immunity from later manifestations. On Wednesday the forenoon sederunt was taken up by a learned discussion on the pigmentation of the skin; the afternoon was devoted to the very interesting question of Psorospermosis. Professors Boeck of Christiania and Neisser of Breslau demonstrated the peculiar bodies within the cells in molluscum. Boeck showed some admirable drawings and photographs of cases of psorospermosis follicularis vegetans, and an even more remarkable one was exhibited by Amicis of Naples. In the instance depicted there were raspberry-like growths in the axillæ, hams, and groins, and these bore the closest similarity to aggregate molluscum. The microscopic specimens showed bodies within the cells of the rete mucosum, all of which manifested the same regular contour, and were to appearance structures which it was hard to believe were mere modifications of epithelium.

On Thursday afternoon the discussion was one which attracted the greatest general interest, that on Lupus Erythematosus. The subject was introduced in an exhaustive and excellently reasoned paper by Mr Malcolm Morris, who opposed the idea of a tubercular origin. He holds the opinion that it is an inflammatory affection belonging to the erythema group, and not necessarily connected with any microbic agent. It depends, in the first instance, on local circulatory disturbance, which may be due to some external agency (cold, heat), or to some nerve disorder. The supervention of acute inflammation may possibly be due to the invasion of the affected parts by a microbe, such as the streptococcus of erysipelas. With regard to the varieties of Lupus Erythematosus, he accepted Kaposi's division into the "discoid" and "aggregate" forms. The third variety described by Kaposi, in which it seems to become universal, and sometimes causes death, he had not seen, but was inclined to think that in such cases the local affection is complicated by an acute infective process. To obviate confusion, he would discard the term "Lupus" as applied to Lupus Erythematosus, and proposed "Erythema Atrophicans" instead. He was supported in this view by the German and Austrian members generally, but opposed by Boeck and all the French specialists present. The writer suggested that Lupus Erythematosus might correspond to Lepra Maculosa, and in fact represent the angioneurotic form of tuberculosis of the skin.

The discussion on Friday promised well. It was on the prevalence of the Dermatomycoses in various countries, but the lead was not followed up. Dr Feulard gave some carefully compiled statistics, and showed a coloured map of the distribution of ringworm in France, but the succeeding papers were discursive. On Saturday Dr Hans von Hebra read a paper on a new remedy—Amylsulphocarbamid—for lupus, which from the renown of its introducer created much interest, and after two communications on quantitative and morphological changes in the blood in syphilis by Drs Konried and Rille of Vienna, the Congress was brought to a close by addresses from Kaposi and Hardy. The place of the next meeting was decided by vote in favour of London, and Mr Hutchinson was unanimously nominated as its President. If there was any failure in the discussions to fulfil all that was anticipated, this was not due to the contributions themselves being defective in scientific value, but mainly to the fact that the results were not summed up at the termination of each sitting. This was indeed rendered difficult from two causes: one, that no abstracts of the papers had in most cases been prepared and circulated before they were read; the other, that the enunciation was often so rapid, or the articulation so indistinct, that it was nearly impossible to follow, in an unfamiliar language, the thread of the argument. As, however, all the communications, read or unread, are to be published in full in the *Transactions*, the volume will be found to contain much of permanent worth.

But from another point of view the Congress was a great success, in the opportunities it afforded of seeing many actual examples of rare and curious forms of disease, or of studying their counterparts in the collection of casts and drawings which were arranged in the museum. The visiting hour at the k. k. allgemeine Krankenhaus, the Krankenhaus Wieden, the Krankenanstalt Rudolf-Stiftung, and the allgemeine Poliklinik, was from 7.30 to 8.30 A.M., and as some of these places are a considerable distance from the University, it was not altogether an easy matter to overtake them. In Professor Kaposi's wards there was a case of diffuse scleroderma in a woman aged 55, who had suffered from the disease for three years. The hands were chiefly affected, the fingers stiff and board-like, being curved into the palms, while the tips were a trifle clubbed, yet she was said to have no pulmonary complaint. There were also patches and stripes of scleroderma distributed over the legs, arms, and body. Her condition had somewhat improved under the employment of massage. Another woman of 53 was an example of widely spread cancer *en cuirasse.* The disease began, she said, under the left breast. The mamma was atrophied, the nipples deeply furrowed round, and the skin of the chest and back to a large extent indurated and immovable. The skin where attacked by the cancer was in part pinkish, in part a creamy yellow, here and there excoriated, and the seat of much and acute pain. It was impossible to discover if the case was a primary or secondary one.

Pemphigus seems more frequent than with us. There were two cases of pemphigus foliaceus. One of these was in a man aged 35, a Bohemian. The disease had lasted a year. The whole body was involved. The integument was a vivid red, and was peeling off in thin flakes, but the period of pie-crust exfoliation had for the time at least ceased. The surface was extremely tender, he complained of much pain, yet had no itching, and, curiously enough, though the skin was so intensely congested and the epidermis so imperfect, he experienced no chilly sensations. The other, in appearance similar, was in a woman aged 42. When seen she had just returned to bed after a tar bath lasting an hour, and shivered so much on the least exposure that any prolonged examination was out of the question. Both were in a most distressing condition. A case of much interest was one which Kaposi called pemphigus pruriginosus, but which might certainly have been regarded as a typical example of dermatitis herpetiformis. The patient, a man aged 26, had had the ailment more or less for five years. The disease affected the body, but not the face. There were no blebs visible, the trouble being at the time in the macular phase, with a good deal of pigmentation. Itching was pronounced when a relapse occurred, and coincidently with the development of bullæ. A typical instance of diffuse idiopathic sarcoma, as described by Kaposi, Hyde, and others, was seen in a Gallician, aged 51, who had had it for two years. There were purplish patches, pretty extensively distributed and symmetrically arranged, on the backs of the hands and dorsum of the feet, accompanied by some œdema. There was a nodule, which alone would have been recognised as sarcoma, on the back of one auricle. On the forearms the patches were rather a brownish red than purple. The disease would almost seem to commence as an inflammation, and then secondarily to become a sarcoma.

Among the numerous cases of prurigo was one answering to the type of this disease as described in Vienna. A boy of 15 had had the complaint since infancy. The skin all over was dry, the extensor aspects mainly affected, it was thickened, bound down and infiltrated, and covered with a mortar-like formation, so that the aspect was not altogether unlike a pityriasis rubra pilaris, without the characteristic redness. There was some pigmentation from scratching. He was being treated with a 5 per cent. naphthol salve. The other cases of prurigo in adults were so often complicated with scabies or pediculosis, that it was hard to determine how much depended on these latter conditions, and how much on prurigo.

Three of the continuous baths were occupied. One case was that of a woman of seventy with elephantiasis of both legs, which had lasted three years, and had assumed very considerable proportions. She had not had erysipelas, but it could not be ascertained whether filariæ were present or not. She had been five months in the bath, and the limbs were said to have decreased a good deal. As a foil to her in an adjoining one lay a man, suffering from severe bed-sores and wasted to the last degree.

At the Wiedner Hospital Dr Schaefer, assistant to Dr Riehl, showed me a case of primary mycosis fungoides. It occurred in a labourer aged 47, who had had it four months. There had at no time been any eczematous stage, nor had he experienced either pain or itchiness. There were nodules in groups and isolated, on the ankles, shins, and knees. The nodules varied from a bean to a walnut in size, felt tolerably hard, and were a pale flesh colour. Some were smooth, almost glossy on surface, most were covered with flakes of dry epidermis, or thick masses of crusted scales. He had been in hospital for six weeks, and in that time new nodules had developed, while others had become absorbed, leaving white scars. There was some amount of redness of skin here and there, but as iodoform ointment was being applied this might perhaps account for it. Internally iodide of potassium was being taken. He had never had syphilis.[1] A case which was made much of was that of a woman with extensive tuberculosis of the skin of a stump after amputation. The leg had been removed through the middle of the femur for a fungoid tubercular disease of the knee-joint, and the skin had remained well for a year. Then reddish purple nodules had appeared, had broken down, and had extended somewhat serpiginously. The bacilli had been found as many as from three to six in a section, thus much more numerously than in lupus. There was some scar formation. Tuberculin had been injected, with the result of aggravating the disease.

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[1] In connexion with this it is a rather remarkable circumstance, that immediately after my return from Austria, a most aggravated case of mycosis fungoides was admitted into my ward,—the first, so far as at present ascertained, known to have occurred in Scotland.

At the Poliklinik, Dr Hans von Hebra showed several cases of much interest. There were some severe examples of lupus treated with thiosinamin or amylsulphiocarbamid, a substance having the formula $CS\left\{\begin{matrix}N\,H\,C3\,H5\\ N\,H2.\end{matrix}\right.$ This is a white crystalline body. Of this a 15 per cent. alcoholic solution is made, of which from two to three centigrammes are injected. This causes no irritation, but in two or three hours local reaction takes place, manifested by redness and swelling in the lupus patches. The reaction is less the more widespread the lupus, as if the remedy had more room to expend itself. None of the examples exhibited could be said to be cured, but when compared with photographs taken before the commencement of treatment, it was evident that the secondary results of the invasion by lupus had diminished. Thus the shape of the nose had been improved, ectropion was less pronounced, œdema was lessened. The effect, to employ the phraseology introduced by Unna, was exerted apparently on the lupus fibroma rather than on the lupus plasmoma. Thiosinamin was introduced to Hebra's notice by v. Froschauer, with the idea that injected subcutaneously it produced immunity against bacillary infection.

There was a case of scleroderma which had been treated for a year with small doses of Levico arsenical water. Since its administration the disease was said to have steadily improved; the girl herself maintained this, and it was confirmed by her mother. Still it must be born in mind that such cases have a tendency to spontaneous amelioration, independently of remedies. A young woman was shown affected with a most peculiar keratosis of the palms and soles. The whole of the surface of the palms, the only parts carefully examined, perhaps less in the centre than at the sides, was converted into a hard, semi-transparent, warty structure, not unlike shagreen leather to feel and surface appearance. There was decided hyperidrosis, which, so far as could be gathered during a brief inquiry, had begun concurrently with the commencement of the hyperkeratosis, and thus of several years' duration. But the interesting point in the case was, that both conditions had started after she had taken arsenic for a time. It appeared that she had been ordered arsenic in the form of Fowler's solution six years before, for some eruption on the face. She had continued to take this uninterruptedly in doses of from two to twenty minims three times a day. Mr Hutchinson, who has recorded similar instances of hyperkeratosis as an idiosyncratic condition after the prolonged administration of arsenic, has also "known very profuse sweating of the palms and soles, especially of the latter, to be definitely due to arsenic. In consequence of this profuse perspiration the epidermis becomes sodden and may peel off. In one case in which it was necessary to give arsenic in large doses, this condition was produced repeatedly, and always ceased when the drug was disused." [1]

A selection from the latest casts executed by Baretta for the Hospital of Saint Louis found a place in the museum. All were of exceptional interest; one or two may be noticed here. Lichen scrofulosorum has been the subject of much difference of opinion; a cast from a typical instance proved that the original view expressed by von Hebra was the correct one, as tested even by the most recent pathological knowledge. The case was one of M. Hallopeau's, and showed the hip of a girl aged seven, with a tubercular history. There were minute pinhead-sized papules, of a pale yellowish-red colour, and presenting something of the glancing summit seen in those met with in lichen planus. These were arranged in circles, or in bands, a quarter of an inch wide. There were also patches of lupus, very superficial, and of a dull purplish red hue, with the lichen papules set round these. The papules corresponded to the pilo-sebaceous follicles; their structure was shown by Darier to be tubercular, but the bacilli were not discovered. These latter were found in an exactly similar case by Jacobi. The eruption completely disappeared under frictions with cod-liver oil. A full report of this interesting case appears in the *Annales de Dermatologie et de Syphiligraphie,* Marz 1892, p. 281.

Glanders in man is usually regarded as an acute disease, not that the chronic form is not admitted, but is apt to be lost sight of from its rarity. A terrible example of this variety, from the practice of M. Besnier, was reproduced in a perfectly lifelike manner. The same case forms the subject of one of the plates in the last number of the *International Atlas of Rare Skin Diseases.* There was destructive and serpiginous ulceration, which had eaten away the whole of the upper lip, and had penetrated through the right side of the nose into the deeper parts. The duration of the disease had been more than a year from its commencement till death. Numerous inoculations into guinea-pigs, a dog, and an ass, proved the correctness of the diagnosis.

Boldly executed and truthful in detail, yet still in some degree wanting in the peculiar delicacy characteristic of the casts by Baretta and Meheux, were a number prepared by Dr Henning of Vienna. Among these were several of actinomycosis, some presenting the more ordinary features as seen on the cheeks, but one from the klinik of Professor Albert which was quite remarkable. This might have been readily mistaken for an aggravated example of multiple scrofulous abscesses of the neck. The whole neck from its root to the level of the jaws was occupied by large fluctuating tumours, from one to three inches across, of a dusky, reddish-brown tint. Some had burst, and drops of yellow pus were seen exuding from the apertures. There were two casts from the trunk showing what is termed in Vienna tinea tonsurans maculosa. One was from Professor Neumann's klinik, and in general corresponded to ringworm of the body as seen here, though in a widespread and very superficial form. There was no doubt as to the diagnosis, as the parasite had been found in the scales. The other resembled a mild but extensive psoriasis, or rather a pityriasis rosea of Gibert. The chest and arms were closely set with discrete, reddish-brown or pinkish macules, some with a scaly periphery. There was, unfortunately, no history of the case appended to it, but the scales had not been investigated for the trichophyton. It was, however, almost the exact counterpart of a case which was certainly pityriasis rosea recently in Dr Brakenridge's ward in the Royal Infirmary, and which after lasting three months uninfluenced by remedies, slowly and spontaneously faded. In it no parasitic elements were discoverable.

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[1] *Archives of Surgery,* p. 70, vol. iii.

This is not the place to particularize the various hospitalities which were so liberally showered on the members, but reference should be made to the reception given by Professor and Madame Kaposi on Tuesday evening, to the visit to the Opera on Monday night on the invitation of the General Director, when the new opera by Mascagni, Cavallerie Rusticana, was done every justice to and thoroughly appreciated by the crowded house, and to the splendid banquet given by the Vienna Dermatological Association in the Sachergarten in the Prater. At the latter each speaker, in proposing or replying to the toast of his health, spoke in his own language, thus Boeck used Norwegian, Joannu Greek, Van Hoorn Dutch, etc., which led Mr Hutchinson in his turn to express himself as very much inclined to anathematize the Tower of Babel.

Various excursions were organized for the members of the Congress, to Baden near Vienna, to Kaltenleutgeben, Dr Winternitz's hydropathic establishment, and to the Kalenberg, but the only one the writer took part in was that to Buda-Pest, on the invitation of Professor Schwimmer. A considerable number of the members went thither by train on Saturday afternoon the 10th September. The distance, some two hundred miles, is accomplished in about five hours and a half. The comfort of the English speaking contingent was attended to by Drs Török and Rona, who secured most luxurious accommodation for them in the Hotels Königin von England and Hungaria. On Sunday morning, after an early breakfast in the well-known Cafe Rémi on the bank of the Danube, we drove in procession through the principal streets, the Andrássy and Ring-Strasse, in carriages provided by the city, being eventually set down at the entrance of the new and handsomely appointed General Hospital, and were there shown over the dermatological department by Professor Schwimmer. His wards are spacious, beautifully clean, well ventilated, and not over-crowded. In them were cases of deep interest, which would have well repaid a prolonged study. One was a boy aged 11. His case had been diagnosed by Professor Kaposi as one of lichen ruber acuminatus, but was unanimously regarded by all the French dermatologists present as a typical instance of pityriasis rubra pilaris, so that the identity of these conditions may now be definitely accepted. The greater part of the integument, including the arms, legs, face, and most of the trunk, was red, rough, infiltrated, and scaly. But for a considerable space round the umbilicus and in both groins the skin was pretty much of its natural hue, but set with almost mathematical regularity with acuminate papules, each identical in appearance, and rather larger than a pin's-head, imparting the aspect of a nutmeg grater. Till this case came under my notice the illustration which Besnier gives of pityriasis rubra pilaris in his classic treatise had seemed too diagrammatic, but here were the papules reproduced precisely as he has depicted them. The boy seemed in good general health.

There was also a man with an eruption considered by some of those present as psoriasis, by others as lichen planus, and again by a third group as eczema. His body was covered with red flat papules, each the size of a millet seed, but in parts, apparently from scratching, there was some exudation and crusting. Hence, perhaps, the discrepancy in opinion. In a separate ward lay a woman aged about 25, affected with what was said to be lymphoderma. There was on the face, arms, and extensively on the chest, a condition allied to erysipelas. The skin was swollen, pinkish red, tense, and glossy. But besides this, the chest presented lesions resembling lupus erythematosus, and the suggestion was made by more than one, that perhaps the case was really one of lupus erythematosus which had become acute and generalized. In Professor Schwimmer's room were displayed many admirable drawings of rare and curious skin diseases, including diffuse symmetrical sarcoma, pemphigus foliaceus, and dermatitis herpetiformis.

On the courteous invitation of the proprietrix, Madame Saxlehner, a visit was made to the renowned Hunyadi Janos Springs. These are situated a few miles from Buda-Pest, the wells being sunk in a plain, arid and uninviting on its surface, giving no promise of the wealth stored so abundantly beneath. The whole process of collecting, bottling, and packing the bitter water, was demonstrated and explained by Herr Saxlehner and his brother, and then a *recherché* lunch was served and partaken of, while a Hungarian band discoursed music of every nationality, as only a Hungarian band can. The day was a perfect one, cloudless, but the heat tempered with a gentle breeze, and its recollection will live in our memory as one to be marked with a special red letter, all the more as it closed with a most pleasant reception at Professor Schwimmer's. Part of Monday was occupied by a picnic, arranged on the invitation of the dermatologists of Buda-Pest, to the Margarethen-Insel, the "Pearl of the Danube,"—a beautiful island situated a little way above the city, the property of the Archduke Joseph, who has spent large sums in embellishing it. It is a lovely, well-wooded park, set in mid-stream, and is the favourite resort of the citizens, who are justly proud of it. It possesses an abundant thermal spring of sulphurous water, at a constant temperature of 110°. An extensive and well-arranged bathing establishment has been erected at the spring, and furnished with all the most approved bathing appliances, including a series of electric baths. When at length we parted after *déjeuner* from the kindest of entertainers, the word passed on from every lip was "*à Londres.*"

IV.—SOME PRACTICAL RESULTS OF THE INVESTIGATION OF CHOLERA IN GERMANY.

By WILLIAM RUSSELL, M.D., F.R.C.P.E., Assistant Physician to the Royal Infirmary, and Lecturer on Pathology in the School of Medicine, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh on 2nd November* 1892.)

MR PRESIDENT AND GENTLEMEN,—Before the occurrence of the epidemic of Asiatic cholera in Western Europe during the past summer and autumn, the importance of the discovery of its probable pathogenic factor can hardly be said to have been actively appreciated or valued. If the discoverer were correct, it was only one more stone added to the Temple of Knowledge, but its bearings were to conditions too remote from us,—too Oriental in fact,—to command much homage from the practical Anglo-Saxon. Before this, however, the discovery of the comma bacillus by Koch, and the accuracy of his contention that it was the pathogenic organism of Asiatic cholera, were accepted by many bacteriologists and pathologists, and by some physicians; still that acceptance might be regarded more as a Laboratory Belief than a Practical Faith; and Koch's comma bacillus commanded no special attention in the culture tubes in the laboratory. This was pretty much my own attitude towards the discovery when it suddenly became a very practical question to me, and to every physician who contemplated the possibility of cholera being introduced amongst ourselves. In the month of September the questions which were before my mind, and must have been before the minds of many of my brethern were: If the comma bacillus is the pathogenic organism of cholera, will the fact be of practical value? We were hearing of cholera nostras and cholerine, and so forth, and we knew of differences of opinion as to the nature of them. We also felt sure that cholera must be like other infective diseases, and present grades of severity. The severe case with its well-known descriptive picture held a place in our memory, even although we had no memory of its living picture; but there were surely other cases in which the attempt of the physician to form an absolutely correct diagnosis must be futile. Of course, if nothing was to be regarded as cholera that did not follow the classic course the position was simple enough; but that suggested an experience I had years ago, when a practitioner senior to myself objected to my diagnosis of a case of typhoid fever because the patient was not in a state of muttering delirium, had not a brown dry tongue, sordes on his teeth, and pea-soup stools.

The practical bearing and possible settlement of this question seemed to me of first-rate importance, for if mild cases of cholera occurred, they would as certainly form foci of infection as mild cases of scarlet fever do. If Koch's comma bacillus was of pathogenic importance it would be found in the mild cases, and if that was the case it seemed desirable to have some experience in practically seeking for it. These were the considerations which suggested to me the idea of going to Germany to see and to judge for myself.

In this communication I shall confine myself mainly to the experience of cholera in Berlin, as it was studied there in the Moabit Hospital, and in the barracks attached to the Institut für Infectionskrankheiten, which is under the directorship of Professor Koch. The general facts which I shall give I learnt when there; but since my return I have received papers from Dr Paul Guttmann,[1] the director of the Moabit Hospital, and Dr Kossel[2] of Koch's Institute, which give in greater detail the results of their work, and these I shall avail myself of. In the first place, however, I wish to acknowledge here the kindly courtesy and readiness with which Dr Paul Guttmann showed me all I wanted to see at the Moabit Hospital; also the ready help which Dr R. Pfeiffer, the senior in Koch's laboratory, extended to me by introducing me to Dr Kossel, one of the assistants in the laboratory, who had charge of the investigation of the cases received into the cholera station in the barracks. To Dr Kossel I am specially indebted for allowing me to be with him in the laboratory daily, and frequently in the barracks, during my stay in Berlin, and for many lessons I learnt from him in other things besides cholera.

I confine myself to Berlin results, as I saw and learnt sufficient there to satisfy my own mind, and because it had the advantage over Hamburg of having so few cases of Asiatic cholera that it was possible to investigate them; while they had many cases of suspected cholera, and it was on the investigation of these that, as it seemed to me, the question largely rested.

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[1] *Berliner Klin. Wochenschr.*, 1892, No. 41; *Deutsch. Medicin. Wochenschr.*, 1892, No. 41.

[2] *Deutsch. Med. Wochenschr.*, 1892, No. 41.

I may mention first a fatal case of cholera nostras recorded by Dr Guttmann, the first fatal case he ever had, and which occurred in July, before Asiatic cholera was known to exist in Germany. The case is recorded in detail, and its clinical picture closely resembles Asiatic cholera; it was regarded as a severe case of cholera nostras, as it was a solitary one; the stools were examined, and no comma bacilla found. At the autopsy the entire small and large intestine showed the mucous membrane to be in a state of inflammatory redness and swelling. The solitary follicles and Peyer's patches, however, were mostly free of the glands, although some were a little swollen. This comparative freedom from the inflammatory process he regards as anatomical evidence that the case was not Asiatic cholera, with the proviso, however, that when cholera patients die in the stage of cholera-typhoid, death may be so delayed that the inflammatory swelling of the mucous membrane and the follicles may have considerably subsided. The degree and extent to which the colon shared in the inflammatory process he regards as also against the case having been Asiatic cholera. He considers the enlargement of the follicles, especially in the lower part of the ileum, a fact which he noted in the epidemic of 1866, and confirmed by the autopsies of the more recent cases, as characteristic of Asiatic cholera.

Let me now refer to some of the statistics of the Moabit Hospital from 24th August. There were admitted 30 cases of Asiatic cholera, of which 15 died; 2 cases were brought in dead, and were shown by autopsy and bacteriological investigation to belong to this group; 54 cases of cholera nostras, none of which died; 153 cases of diarrhœa, of which 1 died; and 88 cases sent in to be under observation, of which none died. As regards diagnosis, Dr Guttmann says the severe cases are easy of recognition, although the severe case of cholera nostras already referred to, and a case of antipyrin poisoning which he had, markedly resembled severe Asiatic cholera. With regard to the mild cases his experience was the reverse of this, and amongst the 30 cases there were five such. Some of these had a very suggestive history, persons taken into hospital and placed in the observation wards because they had been in contact with cholera patients, had, after admission, slight diarrhœa, and the stools examined bacteriologically showed the presence of comma bacilli. The prevalence of diarrhœa during and often preceding the appearance of an epidemic of Asiatic cholera is well enough known, and both in this country and elsewhere many of the cases occurring at such a time are spoken of as choleraic diarrhœa. Now while it may have been shrewdly suspected that some of this class of case when accompanying an epidemic of Asiatic cholera were really mild cases of that disease, or, at all events, were the result of the reception of the cholera poison under conditions referrable to the virulence of the poison or the resisting power of the individual, still this was not more than a "pious opinion," for no proof was possible. Further, it has been noted that many cases of cholera nostras have a more severe onset than mild cases of undoubted Asiatic cholera, and may be mistaken for it. Now from this, which is the clinical standpoint, there was no escape, clinical medicine could go no further. Its impotence was manifest. At the Moabit Hospital with abundant material, a capable staff, and great enthusiasm in the work, they had concluded that the bacteriological investigation of the stools separated and differentiated the cases. Out of some hundreds of cases of cholera nostras and diarrhœa they had examined 51, and in not one of these was the comma bacillus found, nor Finkler-Prior's Bacillus.

The bearing of this practical conclusion from the work of this hospital alone, the work being done as it was, is of the greatest importance and value as it seems to me. Additional observations from many places may be added to it, and mayhap contradictory evidence may be forthcoming, but the results of investigation at this one spot, under the conditions referred to, can hardly, I think, be other than the illustration of a fact broadly applicable.

If this be the case, the identification of mild cases of Asiatic cholera becomes of the greatest moment. In illustration of this I may refer to the facts of a case admitted into the cholera wards at Koch's Institute a day or two before I left Berlin, and which have since been published by Dr Kossel; the case turned out to be one of Asiatic cholera, yet for some days before admission the patient, a man, had suffered from diarrhœa, and had deposited his excrement in the water-courses, in quiet nooks in the Thiergarten, and at whatever spot was most convenient when the "calls of nature" became imperative. One almost shudders to think of the foci of possible infection such a case drops amongst a community.

If we now look at the results from Koch's Institute, there were 52 cases of suspected cholera admitted into the barracks there; 2 were cases of Asiatic cholera. The clinical experience here was the same as at the Moabit, namely, that severe cases of cholera nostras were identical with milder cases of Asiatic cholera, and that they could only be separated by bacteriological investigation, but that they could be so separated. An important part of the work done in this laboratory was the examination of intestinal discharges and of soiled clothing sent from other places. According to Dr Kossel's published figures, 42 such were examined, and of these 19 gave the comma bacillus by culture. Fæcal matter and clothing were often received after having been treated with antiseptics, which of course prevented their thorough examination. I have seen there the most perfect cover-glass preparations of comma bacilli taken from the fæcal soiled clothing sent to the laboratory.

With reference to the investigation of the intestinal discharges

I may say a word. The presence of comma bacilli may be demonstrated by cover-glass preparations made from the discharges, but this is not accepted as sufficient; plate cultures are made, and on these the characteristic colonies of Koch's comma bacillus are distinguishable under a low power in about 24 hours or even less, and if further proof is required, stab-cultures can be made from the colonies, and the changes effected in the nutrient gelatine followed. (These were demonstrated to the Society.)

The length of time during which the comma bacillus was present in the discharges was followed in a small number of cases in the Moabit Hospital, with results varying from 5 to 9 days. At Koch's Institute the number of Asiatic cases was too small to base any conclusion upon, but when I was there every motion passed by the Asiatic cases was examined by plate cultures.

With reference to Hamburg, which I also visited, the impression I got was that there had been too many patients to attend to for the staff to spare much time for bacteriological investigation; still, there they told me they had always found the comma bacillus. The experience gained and the observations made in Hamburg will, I trust, be published; one of the assistants at the Eppendorf Hospital had made 500 autopsies on cholera cases by the time I was there, and such a series of cases could not fail to add to our knowledge even as regards naked-eye appearances.

A word or two may be said with reference to treatment. At the Moabit they tried salol and creolin and tannin injections with no satisfactory result. Calomel was used both in Berlin and in Hamburg, but I am not in a position to speak of the results. What impressed me most at the Moabit, in the old general Hospital at Hamburg, and in the new one at Eppendorf, was the reliance the staff had in saline injections, and the confidence with which they spoke of it, and the absence of risk which attended the operation. At the Moabit Hospital Dr Guttmann believed strongly in the subcutaneous introduction of the saline fluid, in Koch's they believed in its intravenous introduction, and in Hamburg I think they had used both methods. The apparatus used was an exceedingly simple one, but great care was paid to everything being properly sterilized.

It is needless for me, gentlemen, to dwell upon the practical importance of the acceptance of Koch's comma bacillus as the cause of cholera—it has made the disease a more tangible and comprehensible entity; it has shown how water, food, and clothing are infected, and become the vehicle for spreading the disease; and in doing so has shown how it is possible to check and to arrest it, and best of all to prevent it. With Europe threatened by such a plague we place a higher value on this bit of Koch's work, and we place it amongst the great discoveries.

V.—ON LUPUS.

By T. L. Milton, M.R.C.S. Eng.

Lupus has of late years attracted so much attention that I wish to say a few words about the pathology and treatment of the complaint, more particularly the latter. The paper, indeed, is simply practical. The question of the disease being due or not to the bacillus is dealt with very briefly, and all points connected with its histology, classification, and divisions are left on one side, the only arrangement touched upon being that of separation into common and erythematous lupus, with a short notice of the traumatic variety. The treatment recommended is therefore to be understood as applying to all forms of the complaint, and wherever seated, whether on the limbs, head, or face; and the suggestions offered on this head are based on the observation of 456 cases entered in my department at St John's Hospital, and 24 treated outside the institution.

As to the supposed causes, in the parent, of lupus in the offspring, they are one and all so utterly inadequate to account for the appearance of the disease, that for any light they throw upon the question they might be non-existent. Hereditary taint is often spoken of as a factor, but in my own practice I have met with no evidence showing that lupus is ever inherited; Pontoppidan, however, gives the proportion of instances of heredity at three in the hundred. One reason, perhaps, for the rarity of inheritance is that lupus often begins in early life, and that consequently most of the sufferers from it are, before marrying age, so disfigured that they have little chance of continuing their race; indeed, I never knew but one patient with lupus (a woman) marry. Struma in the parents or family is also quoted as an agent, but this I have equally failed to verify, and in the one solitary case seen by myself where there could be a suspicion of descent, the conditions were reversed: a mother, attacked with lupus beginning rather late in life, being accompanied by her son, a young man, with well-marked strumoderma and suppurating glands. Again, strumous diathesis of the patient is ranked as a factor in the production of the disease, but struma constantly displays its worst features without being accompanied by lupus, and the latter may harass the patient for half a lifetime without a sign of struma being noticed. That the two are occasionally seen together in the same subject goes for nothing when confronted with such facts.

M. Besnier, as I understand him, and some of the French dermatologists maintain, not that a strumous diathesis is a cause of lupus, but that lupus is a strumoderma. In my opinion the doctrine must be entirely rejected. Strumoderma does not begin with a slow formation of soft, half-translucent, reddish papules; a particular form of lupus attacks the strumous, and, after lasting for years, has been observed to have taken on none of the characters of strumoderma. The latter generally begins with or is accompanied by glandular swelling, rare in lupus; it is much more amenable to treatment than lupus is, and occasionally dies out under the employment of very simple means, or even none at all, the change being then apparently due to the arrival of the sufferer at the age of manhood, which I have never seen happen in lupus. Prolonged residence of families in ill-lighted dwellings has often been noticed to exert considerable influence over the development of struma, whereas I have not been able to find anything confirmatory on this head with regard to lupus. As to the contention that lupus is a tuberculosis developed in a lymphatic diathesis, I have only to say that, however correct such a view of the disease may be if confined strictly to the country in which the idea took its birth, it is inapplicable here, where the victims of this disease may be seen of every diathesis, or even of no diathesis at all. And if lupus be a strumoderma, then it cannot be a tuberculosis, for it is not the nature of the latter to die out under the use of internal means, as strumoderma undoubtedly does, and for that matter lupus too, whatever may be said to the contrary.

But the strongest argument is yet to come. Nothing can be more certain than the fact that lupus, like epithelioma, has been evoked by various kinds of injury. This form of lupus, first described by myself under the name of L. traumaticus, and repeatedly identified at the Hospital by medical visitors, has been traced there in more than twenty cases to lesions of one kind or other. Among these were bites, jagged cuts, bruises, almost always small but severe; scratches, burns of very limited extent, as from a cigar; stings, and so on; whereas in no single instance did I see reason to think that strumoderma had been brought on in this way. Further, I have to urge that, while several cases have been recorded where carcinoma, chelis, or epithelioma sprang up on a patch of lupus, I have not read of a single instance where this happened with strumoderma.

Nor do I see any reason to accept the view, several times put forward, that lupus is an outcome of weakness accompanied by a meagre development of frame. That mere want of strength is not in any way the efficient cause is, I submit, amply shown by the failure of tonic treatment in this disease. That poor development of the frame may predominate among these patients, that many of them are thin, with stringy muscles, badly shaped, and bearing upon them the impress of coming disease, may at once be admitted; but, on the other hand, some of them are healthy looking, and reporting themselves healthy, ruddy, and well-made people, and I have myself become as sceptical as to this affection being connected with any particular kind of bodily frame as to its being dependent on any diathesis or temperament.

Such arguing as that which ascribes lupus to the ravages of a micro-organism would not be allowed a hearing in any branch of science, and I am at a loss to understand why it should pass current in this case. The bacillus cannot always be detected in the tissues, and therefore to maintain that the disease is always due to it would be to maintain that there may sometimes be an effect without a cause; and if lupus can in some cases spring up independently of the organism, then in strict reasoning it may do so in every instance. Unfortunately there is with respect to many points but little strict reasoning in medicine, and here even a smaller amount than usual. The dependence of the disease on the bacillus and the operations of the latter are spoken of as confidently as if every position concerning them had been proven, though there is neither proof nor probability in their favour. The long venerated doctrine of blood poisons, the offspring of Sydenham's cherished creed, which was to flourish after his death, *me vitâ functo,* once so authoritatively taught, which required men to believe that two-and-twenty such poisons existed, though not one of them could be either seen or felt; that the entrance of every one of these into the blood, its multiplication there by zymosis, and its final elimination, were as effectually demonstrated as the discoveries of Harvey and Jenner; the doctrine so promptly abandoned, without even one word of regret, at the bidding of Pasteur and Koch, is really revived here, and indeed applied to other diseases, under a new name and in a new shape, and with all its inherent defects.

There never yet was a doctrine of blood-poison that would bear looking into, and the bacillus theory of lupus stands investigation almost as badly. It breaks down at the first stage, because it is certain that in remote country places patients contract lupus who have never seen a person with this disease. The second stage must share the same fate, for it is equally certain that in many instances the bacillus cannot be found in the most developed phases of the complaint, which again constantly gets well under treatment without anything special being done to starve, poison, or expel the invader, thus effectually disposing of the third stage. Face to face with clinical experience, the theory fades into a figment without beginning, middle, or end, and for anything it explains the bacillus might have for ever remained undetected by the microscope.

A patient with lupus frequently enough lives long years in a family without communicating the disease to a single person. The bacillus, which traverses miles of open country to reach some lonely cottage, cannot in such cases overleap the slight and feeble barrier which stands between sister and sister, between husband and wife. The believers in the wonderful feats of the bacillus say that this is owing to its not having found a suitable soil to settle in, but figurative language of this kind usually masks an error or represents a superfluity of language. Here we have both. Nothing grows in soil but what undergoes a change; the seed dropped into it does not multiply as the bacillus does, and the phrase "suitable soil" is superfluous, because the condition is better expressed by the older term of predisposition to the disease. And to this as the real cause of the appearance of the disease the predominance must, I submit, be assigned. Where exposure with immunity is the rule, infection can only count for very little.

In the foregoing paragraph I have spoken of the wonderful feats of the bacillus, and as I do not like to make use of an expression of this kind without what appears, at least to me, a good reason for doing so, I shall attempt to justify the remark. As I am anxious not to occupy more time than is absolutely requisite, I have selected as evidence one fact out of several. A gentleman undertook to show me the bacillus in a piece of lupus tissue which he had been examining, and one was with great difficulty displayed; but in answer to my questions he at once admitted that this was the only specimen he had been able to secure, though he had examined a number of sections; and it certainly did appear to me, and ever since has appeared to me, wonderful that this mere mite of matter should be able to effect such a destruction of tissue, which could hardly have been brought about by a prolonged use of the most powerful caustics.

An unhealthy state of the climate has been suggested as an exciting cause of lupus, but nothing very definite on this head has come under my notice. We are also told that the disease is more common in a population exposed to bleak north and east winds, and Pontoppidan traces a good deal of it to raw sea-air. However strictly this may be the case in a northern country, I should, judging purely from personal experience, say that it does not hold good in England. I have not found lupus very prevalent at the seaside; and Margate, which is in a peculiar degree exposed to the sea breeze, has been selected as the site of a hospital for the treatment of this disease and scrofula. I have several times traced lupus to low-lying villages shut in by hills and trees, but I do not attribute much importance to this, having seen the disease in people born in the most contrasted climates; and my colleague Mr Hitchins, after a long and careful search, found himself unable to come to any conclusion about the topography of the disease. I am, therefore, disposed to believe that such agencies simply intensify an inborn tendency to lupus, which would have shown itself sooner or later without such assistance. With the view expressed by Sir Erasmus Wilson, that lupus is due to inherited syphilis, and that of Mr Hunt, that erythematous lupus is syphilis, it is, I presume, no longer necessary to deal; they were utterly unfounded, and perhaps never had any particular influence over either pathological doctrines or treatment.

That lupus owes its existence to some widely diffused and resistless agency, acting unseen and silently on the whole mass of the population, and in conformity with a law long ago recognised by myself, but which I have quite failed to unravel, seems almost certain from the fact that, turn to which side we choose, search what part we may, we shall always find that the number of persons suffering from this affection bears the same common proportion to that of patients with disease of the skin, and unless my calculations have quite misled me, the same proportion, speaking, it is to be understood, exclusively of England, the same common relation to the number of the inhabitants, about one in eight thousand nine hundred and fifty, as well as I have been able to make out, any such computation being, however, quite open to correction. As to any attempt to explain the occurrence of lupus by some theory, or by offering the reader his choice of two or three theories, I have no figment of the kind to put forward; I look upon concoctions of this sort as little better than day-dreams, as things which waste man's time on earth, for they leave no man wiser.

The reader has no doubt noticed that I have included with lupus the erythematous form, which some authors have separated from it and classed with the erythemata. I believe the attempt to be a complete mistake. In a woman who had been suffering from the disease more than eighteen years, unmistakable lupus papules had formed on the posterior edge of the patch, which was seated on the right cheek, nearly covering it. Two women, in both of whom the disease had begun and spread, in classic fashion, like the rough outline of a butterfly, stretching across the bridge of the nose and over the cheeks, were attacked with equally unmistakable lupoid ulceration at the edges of the patches. A man with this form of the disease on the backs of both hands had sycosiform lupus of the face, and Dr Jamieson mentions a case where erythematosus on the cheeks passed imperceptibly into vulgaris of the nose, with characteristic ulceration and crusting. This variety, too, may, like the traumatic, start from an injury, which I have never seen in any erythema; a patch, covering almost the entire right cheek of a woman, took its origin from the opening of an abscess over the zygomatic arch.

We now come to the important part of the matter, the treatment of the disease, and I propose to begin by examining the system of Dr Koch, the history of which has revealed an amount of credulity, contempt alike of reasoning and grammar, hasty judgment and intolerance, not often, if ever, paralleled in the annals of medicine. The millennium of medicine had come, an era of science had dawned upon the world which for ever rendered all former experience worthless; about that no dissentient opinion was to be heard. Lupus had been cured in a week, even in five days; consequently its speedy extinction, or at any rate relegation to the list of mild affections, was merely a question of time, and a very brief time too. Consumption was also to fall before the unsparing arm of modern science, and the system which mastered it would deal equally well with tuberculosis of the joints.

Although I have read a good many reports and communications to the medical journals about injecting, I have only come upon one case which could be considered a history of a cure of lupus, that brought by Dr Abraham before the West London Medico-Chirurgical Society; how many hundreds of failures there have been we shall never know. Thirty patients were treated at St John's Hospital in this way by Dr Dockrell with all imaginable care, and in the presence of a number of medical men; they were kept under observation for months, and their subsequent histories, with one exception, systematically traced. All improved, but twenty-seven relapsed, two did not relapse, and one, the exception just mentioned, could not be followed up. It is not easy to see how a remedy could have been more impartially tried, or how failure could have been more complete; not one of those, I believe, who watched the experiment coming to any other conclusion.

From the eagerness with which tubercular injecting was at once elevated to the rank of supreme agent of cure, I presume it is generally believed that an agent of this kind outweighs in power constitutional and dietetic treatment aided by local means. It will need more success on its side than yet has been achieved with any purely topical remedy to supersede, in the judgment at least of unprejudiced persons, a comprehensive system of internal means to which topical measures are strictly subordinated. Such a method may be reproached with slowness of operation, it does not promise such speedy and brilliant results as the knife and sharp spoon; but properly and persistently carried out, it never, I believe, fails to improve the patient's health, almost always arrests the progress of the disease, and fairly often effects a cure, which at any rate lasts for years, if not for life. I say this quite advisedly. I have repeatedly shown the medical men, following the practice in my department at St John's Hospital, cases of lupus of all kinds in all stages of cure, not one of which had been subjected to any torturing application or any operation, only the mildest local means having been employed. I have not seen an instance where a patient, supposed to be cured by these means, had relapsed, and I have had several opportunities of learning that patients, discharged a considerable time before, had had no return. But there may have been even numerous relapses, and I limit myself expressly to saying that I have not heard of any.

Then, inasmuch as the advocates of scraping, cutting, and gouging out lupus patches and ulcers cannot but admit that the mild topical means just mentioned could by no possibility have destroyed the bacillus, the cure must, on their own showing, have been effected by the constitutional treatment alone; so that this is sometimes at any rate adequate to the task if we could only direct its powers aright. Further, I suppose it will be conceded that the local measures named in the opening of this paragraph are at least painful, disfiguring, disabling, and not unfrequently useless; the disease returning just the same after what, in the report of the case, looks like a cure. If the gentlemen who recommend such operative proceedings do not admit the frequency of failure and relapse under their hands, then those who have seen a good deal of the disease will admit it for them. Leaving on one side a whole host of cases, I may mention that one girl, who entered at St John's Hospital, had been scraped eight times, the lupus after the last of these operations being as bad as ever; indeed, a gentleman of large experience in these cases said, in my hearing, that of all the bad forms of treatment, scraping was the worst. I cannot quite agree with him, being of opinion that cutting is just as useless, rather more painful, and equally mischievous. Among other instances the two following may be cited. Not long ago a girl was attending at the hospital who had been cut five times for lupus of the face without the destructive progress of the disease being in the least staid, while the patient is disfigured for life; a lady came over from New Zealand to be treated for lupus on the back of the left hand, which was badly scarred both lengthwise and crosswise, the result of two successive operations, in the course of which the hand had been laid completely open, without the least good being done in the way of cure or even arrest.

I never could understand what the advocates of purely local treatment propose to do with the symptoms of general ill-health so often seen accompanying this complaint, notably loss of strength, wasting, indigestion, constipation, and headache; whether they have satisfied themselves that the removal of the local affection will be followed by the spontaneous disappearance of all such complications, or that trifling matters of this kind are below the notice of science, are points respecting which the works I have consulted are silent; while in conversation I have only received in reply to my questions answers which did not allow of any satisfactory conclusion being drawn from them. Having never seen an instance of lupus cured by purely topical means, I speak, as concerns personal observation, in total ignorance of what the effects of such a cure may be on the general health; but I have seen plenty of cases where pretty well every form of outward treatment yet recommended had been tried without benefit to the disease, and where, when any effect had been produced on the system, it was decidedly of an injurious nature.

If medical men have been disheartened by their want of success in the internal and dietary treatment of lupus, they have in some measure, and especially in respect to the latter, only themselves to thank. For years and years they have, with one or two exceptions, gone on ordering tonics and highly-nourishing food in this complaint, seeing the patients get persistently worse, and yet never stopping to try whether benefit might not result from some form of change; repeating, one generation after another, the announcement that this affection is due to weakness, and therefore demands the remedies suited to this state; and lastly, also one generation after another, winding up all treatment by sending the patient to a milder air, to some watering-place, or to the seaside, all three about of as much service as they would be in a case of cancer.

I may have been mistaken, may have gone too far in making such a sweeping statement as that in the foregoing paragraph, but till I am refuted I shall continue to believe that it is strictly in order, and that with the exception of Lugol's researches, which, though bearing chiefly on struma, cannot, looking to the views of French pathologists, be lost sight of here, and, indeed, two of the cases quoted in his famous treatise were cases of lupus—those of Dr Piffard, of Dr W. Frazer with barium in perforating lupus, and of Morgan and Eames with phosphorus—there does not exist evidence of any serious attempt to investigate the action of internal remedies in this disease. Compared with the apathetic routine of prevailing systems, Lugol's observations stand out in strong contrast; they were truthfully and laboriously carried out, and if he did not effect all the good he aimed at, his want of success was due to the inadequate powers of his great remedy, not to any want of ability on his part. Nor have the labours of the others yielded, so far as I can learn, much better fruit, Dr Frazer's being the one solitary success achieved in this direction.

Several years ago I proposed to divide the internal means recommended in books for lupus into three classes,—those possessing some control over the disease, those of doubtful value, and those of no value at all. The first class comprising arsenic, calomel, saline aperients, and in lupus of the limbs iodide of potassium; the second, all the salts of antimony except the tartrate, of soda, borax, mercury, iodine and potash, except those just mentioned; all combinations of these, such as iodide of mercury and Donovan's solution, cod-liver oil as ordinarily given, phosphorus, phosphates, every kind of chemical food, all mineral waters, and all vegetable preparations; to the third category were relegated steel, quinine, all mineral acids, bitters, sedatives, alteratives, and sudorifics. I have seen no particular reason to depart from the judgment then passed, and must contend that what I advanced is thoroughly borne out by facts. I distinctly assert that, while I never saw lupus in any way benefited by any of the rejected remedies, and especially not by bark and its alkaloids, steel and bitters, I have several times observed rapid and intractable exacerbation from the use of these things. Steel was particularly mischievous and always a failure; some of the patients had taken it for years without the least good being done, and I myself tried five different preparations of it with no better success. Lupus is not so rare but that there ought to be plenty of cures by tonics to bring forward, but to the best of my knowledge no such evidence of their power exists. Mr Hutchinson, an advocate of tonic treatment, honestly says the cures are few, but I should like to know where even these few are to be found recorded.

The reader will have gathered from the foregoing that the medicines to be introduced to his notice as curative in lupus are saline and mercurial purgatives and arsenic; these indeed, with occasional resort to tartrate of antimony, have alone proved useful in my practice. The saline I have generally employed, and of which I make the most unsparing use, is composed of four parts of the sulphate of magnesia to one of the carbonate, and half to two-thirds of a part of nitrate of potass, dissolved in a small quantity of water, which, with the view of averting griping, should be strongly aromatic, nothing for this purpose answering, perhaps, better than peppermint made from the English herb. When the flavour of this is objected to, as is sometimes the case, cinnamon or dill may be substituted, but they are both inferior to the mint. A small quantity of this mixture, generally about a tablespoonful for a grown person, is given directly the patient wakes, or at any rate a good while before breakfast, and immediately after the dose a quarter of a tumbler of hot water or a cup of hot weak tea is drunk. This arrangement ought to secure a copious stool directly after breakfast and no more. If it operate beyond this, the dose is to be cut down, while it may be increased to double in order to secure the needful degree of action. I have known people unable to bear more than a teaspoonful, and sometimes a patient not particularly strong-looking has reported little effect from two tablespoonfuls, and required such a dose to be supplemented by a pill. This medicine is given every day month after month. If at any time the patient should get tired of it, the surgeon can suspend it for a short period, but the sooner it is resumed the better. Most persons, however, so thoroughly realize that some relief is derived from continuing the remedy, that their great wish, or at any rate the wish they most frequently express, is to be allowed to keep up the use of it.

Occasionally, and especially during mild weather, a mercurial purgative is given, generally twice a week, and at bed-time. For this purpose I have found nothing equal to calomel. I can offer no explanation as to the way in which it operates; I only know that it acts curatively, and in lupus attacking the nose often materially promotes the patient's comfort. These patients often suffer rather severely from a sense of distension of the affected part when stooping, feeling, they say, as if all the blood in the head were rushing into the organ. This a smart dose of calomel often does away with,—sometimes, according to the statement of the patient, the very first taken. For adults the calomel is prescribed in the shape of a pill, combined with opiate confection in order to obviate griping; for the younger patients it is mixed with twice its weight of grey powder. The quantity given is just what will procure two or three loose stools, and during mild, close weather such an amount twice a week is well borne; with the return of cold, raw east winds, it is sometimes not so well supported, and must therefore be employed in a much more restricted fashion for the time being, particularly if the patient's occupation involve much exposure to the air. But it should be resumed so soon as ever circumstances permit, and the reader is to understand that when the mercury is given it is to be given as a purgative, and that, when the amount of action just mentioned is not attained to by the calomel, it must be effected by a supplementary dose of black draught, containing, however, not more than a fourth of the usual proportion of sulphate of magnesia, taken early next morning.

Arsenic is the next great remedy, and is, according to my judgment, best given at the beginning of the course in the shape of the solutio solvens mineralis, a far superior preparation to Fowler's sickly-tasting, irritating solution; the dose four or five minims, gradually increased to six, eight, or ten times as much. Perhaps a mixture of dilute nitro-hydrochloric acid and some mild, bitter infusion, like that of snake-root, is as good a vehicle as we have. This preparation should be continued so long as it seems to be doing good, and when such amendment as it is thought to be affecting comes to a standstill, then the arsenic is to be given in the form of a pill, at first in small quantities, such as the fiftieth of a grain three times a day, gradually increased.

This part of the treatment, if not so indispensable as was taught by Mr Hunt, is at any rate of great importance; it multiplies the chances of doing good, and therefore should always be included in the programme. Mr Hunt effected some wonderful cures with arsenic alone, imposing no restrictions as to diet, and having a perfect horror of all strong local applications. Among other instances he showed at the London Medical Society a bad case of lupus of the face cured in this way. Some of those present suggested that it was only an instance of arrest of the disease, which would be sure to return, and then Mr Hunt was merciless enough to show the patient at the Society, a year later, still cured, no relapse having occurred.

I never could understand how it was that Mr Hunt managed so well, as I certainly was not so successful, for though I tried four different preparations of arsenic most perseveringly, and as I thought carefully enough, I constantly found that the patients could not continue to take the medicine for anything like the time necessary to effect a cure. The eyes became red, tender, and weeping, the tongue coated, the appetite impaired or lost; diarrhœa, nausea, and vomiting set in even when a strong stomachic like essence of ginger or peppered brandy was given after each dose. Under such circumstances it is of no use to persevere in the administration of the medicine, the question being, what is the best *temporary* substitute, for it is always desirable to return to the solution. I have myself for long turned to the phosphoric acid, and have found nothing equal to it in its power of setting right a disordered stomach and coated tongue. I have usually given from fifteen to thirty drops in some mild bitter, like that of Seville orange or calumba, three times a day, continuing this till the symptoms have quite passed away, for it would serve no useful purpose to revert to the arsenic before the system has been restored to its normal state.

At one time I used iodide of potassium as a substitute for arsenic. Having seen reports of cases in some of the medical journals, showing that lupus had been cured with large doses of this salt, I gave it a good trial, beginning with moderate amounts and carrying these as high as the stomach would bear; but in no single instance did I notice the slightest good result in lupus of the face, head, or neck. Some of the patients were speedily made so ill that they could not continue the iodide, and I was obliged to admit that, if others could cure lupus of these parts with it, the task was beyond my powers. This admission, however, I have had to make with regard to so many remedies, that I am grown case-hardened. In lupus of the limbs, especially when seated on the lower parts of the legs, I have sometimes found the iodide very useful. Sooner or later the necessity for any measure of the kind passes away, and then the arsenic should at once be resumed, and sedulously continued unless some further disturbance should again require the suspension of it, as may easily happen. I have had to interrupt the use of it four or five times before proper toleration was established.

The nature of the local means employed must vary according to the extent of the ulcerated surface and the avocations of the patient, for in many cases it is most imperative, and particularly when the disease is seated on the face, not to add to existing disfigurement, and some of our best means do add to it; consequently they must be reserved for patients in the wards, or for young persons who are not compelled to go out to work. Carbolic acid, 95 p. c., is an excellent application, inasmuch as the stain caused by it speedily passes off, while any slight pain it may occasion is still more speedily relieved by the free application of hot water. The patient should be supplied with the acid and taught how to use it, attacking daily as much of the lupoid surface as can be done without much pain being caused. At night some mild ointment, like spermaceti or zinc thinned down with liquor plumbi and sweet almond oil, may be applied, the part being covered with Irish linen to prevent the ointment from being rubbed off and the sheets from being greased. When ointments are objected to, the part can be bathed with hot undiluted liquor plumbi. As far as practicable all discharge should be removed before applying the acid, and sometimes nothing, not even the most sedulous bathing, effects this so thoroughly as a hot turnip poultice, which offers a convenient medium for keeping heat and moisture a long time in contact with the part without much trouble to the patient. Besides, it is possible that the turnip possesses some slight degree of healing power, because patients frequently remark that the part feels much soothed by the use of the poultice, and the disagreeable smell often noticed in children suffering from clipping ringworm or eczema of the head is at once removed by this remedy, while in them the irritation of the scalp is often visibly relieved. The poulticing is repeated every day till the crusts and discharge are completely got rid of.

But when the hands of the medical attendant are not tied, the permanganate of potass should be turned to as offering greater advantages. The solution I employ is one of a drachm to the ounce, and the diseased surface is mopped with this daily till a dark, glossy, hard, adherent film has formed, when it may be discontinued until the lupoid surface is again laid bare by the peeling of the scale. The operation of this remedy is often excellent, especially in the erythematous variety. Any tendency in old papules to rise and enlarge suddenly should at once be checked by rubbing with the solid nitrate of silver, the surface being merely damped; when it proves too painful, iodized glycerine may be substituted. Sometimes, when all appears to be doing well, a small painful sore will form quite suddenly on one of the nostrils, or a few papulæ will all at once break down, and an ulcer take their place with such rapidity as to remind one of sloughing. In such emergencies I think pure chian turpentine is by far the best dressing, the discharge being carefully removed and the powder well dusted on the place. Treated in this way I have seen not only such a lesion close up, but the cicatricial tissue which formed over it take on a much healthier look than other healed parts. The application of calamine lotion to protect the surface from the air is often a source of comfort which patients appreciate highly; it offers also the advantage that it hides much of the disfigurement, especially that caused by erythematous lupus. The rabid irritation sometimes seen in sycosiform lupus, particularly when seated below the chin, is often materially alleviated by scalding with hot water, which, indeed, can be beneficially resorted to in all forms of the disease, followed up by the free use of Duhring's sulphide of potass lotion, or solution of carbolic acid in rectified spirit, three or four grains to the ounce.

Beyond these I know of no local remedies likely to be of service in lupus. I have not tried many, but those which I have tried completely failed in my hands. Nitric acid, acid nitrate of mercury, chloride of zinc, caustic soda, and caustic potass, have been exceptionally recommended. I used them, as I thought, with all needful care, and did little but mischief with them, causing severe pain to far less purpose than might have been attained to by milder means, and not unfrequently with acids injuring the surrounding sound tissue. Nor do I see how it is possible that anything useful in this direction could be extracted from those authors who have touched upon the subject, inasmuch as it would require many years of unremitting labour to select the local application most suited for trial. The reader may think this exaggeration; if so, he has only to observe for himself. Of the caustics alone twenty-three have been recommended, and I need hardly point out that an almost endless series of experiments and researches would be required to determine which was the best of any half-dozen submitted to examination. Indeed, if I had said that half a lifetime would be needed to decide, with scientific precision, such a point with regard to the whole number, I should hardly have overshot the mark.

Besides, there is one very serious objection to the use of caustics which has not met with the attention it deserves, and that is, that if the remedy fail to overpower the disease, it sometimes rapidly and seriously aggravates it. This was particularly the case with a girl admitted into St John's Hospital suffering under lupus of the nose, cheeks, and back of left jaw. She had, after nearly seven years' attendance at different institutions, been thoroughly cauterized under chloroform in a provincial hospital. Shortly after this the disease began to spread, whereupon the surgeon, apparently thinking he had not done enough, again took her into the hospital and cauterized the places most severely with chloride of zinc. But the operation only had the effect of increasing the extent and rapidity of the destructive process, and when, sometime afterwards, she put herself under my care, there was evidently no attempt at repair. Moreover, the fact that any kind of operation is so dreaded by many timid persons as to make cauterizing prohibitory in their cases should always be kept in view. So far, then, as concerns treatment generally, but there are certain hindrances and complications which demand special attention, and which I now proceed to take up.

Thus close, thundery weather often brings on a relapse almost as unpleasant for the medical attendant as for the patient. Papules, which had been diminishing in size and fading in colour, suddenly enlarge and become reddened or pink, while a serous or purulent discharge, which had perhaps been absent for weeks or even months, speedily reappears, accompanied by stiffness, burning and itching, particularly in the sycosiform variety. In such emergencies I have seen nothing answer like the tartrate of antimony. The doses of it ordinarily prescribed are of no use here,—supposing, indeed, they are of use anywhere, which I rather doubt. At least thirty to forty minims of the wine should be taken three or four times a day, and I constantly increase the amount to three, four, or even six drachms daily; I never hear of sickness or even nausea being caused by such quantities, and believe the fears about the over free use of antimony to be entirely unfounded. To prevent, however, any feeling of depression being set up, the acetate of ammonia is added, as is, for no particular reason I can offer, unless it be habit, spirit of nitric ether in small quantities. The use of the calomel is kept up, and rather pushed at such times, and followed on each occasion by a full dose of the senna draught next morning. The local treatment should be of the most soothing kind. A hot fomentation or hot turnip poultice, at least once daily, followed by free use of a weak bicarbonate of soda lotion, a drachm to the eight ounces, with half an ounce or more of cherry-laurel water; at night spermaceti ointment is laid rather thickly on the part, being then covered with a single thickness of Irish linen. When an ointment is objected to, as is sometimes the case, the part can be well mopped with hot liquor plumbi.

The diet should at all times be light, but on these occasions meat should be interdicted, the nearest approach to it being a little weak veal or mutton broth; weak tea and dry toast, milk puddings, white fish, vegetables, supply all that is needful. That general refuge, beef-tea, should be utterly avoided, being as heating, irritating, and generally mischievous as anything can well be. No beer should be allowed on any pretence whatever, and if the use of wine be permitted at all, then only some very light kind, such as hock or sauterne. Perhaps it may be as well to say here, that it is much better to adhere to this diet throughout; meat, especially the heavier and more stimulating kinds, strong soups, jellies, meat juices, stout, and brandied wines, being especially injurious, and only permissible when the patient seems to be suffering severely from exhaustion, which, though a very rare, is yet a possible occurrence. In a few extreme cases of this nature I have given rum and milk freely, and a liberal allowance of it certainly seemed to save the life of one woman, sinking to all appearance under the ravages of the disease.

Every now and then, without any manifest cause whatever, the patient complains of utter loss of appetite and distaste for food; of weakness, langour, and weariness; of backache, and a feeling of being equally indisposed for work or rest. When such symptoms prevail, lime often relieves the patient more quickly than any tonic I have seen tried, and perhaps of all the preparations of it the lacto-phosphate—first recommended, I believe, by M. Dusart—is the best, two or three teaspoonfuls five minutes before breakfast and dinner having often an excellent effect. The phosphate is not prescribed because lime is considered useful in strumous affections, but because under the influence of it the patient recovers appetite and strength, and the depressing symptoms just mentioned pass away. I therefore presume that it acts here as a kind of tonic, just as in other phases of the disease the saline and mercury do, patients getting fat and strong under the use of them.

I have seen no reason to believe that any mineral water or bath is of the slightest use in this disease. It is well known that the power of relieving, if not of curing, lupus has been claimed for some of them, particularly the waters of Louèche, which, in addition, render the same invaluable service to seventeen other diseases of the skin, as also to "secondary syphilis" and "inveterated states such as scrofula;" it is also well known that only too many medical men fall in with the morbid fancies of their patients, and sanction their going to places celebrated for the curative qualities of their waters, the accounts of which are often an insult to common sense. Supposing them to possess only a moderate share of the qualities claimed for them, there ought to be no dearth of cures to trumpet forth to the world, yet I have vainly searched far and wide for one authentic case. The vapour bath often affords these patients much relief, apparently because it promotes improvement of the health and a more comfortable state of the skin.

There are three varieties of weather which seem never to agree with lupus patients—raw, cold east winds; east winds in summer, accompanied by much light; and close, thundery weather. The two first can, of course, be avoided by patients in the wards and those who can remain at home; no precautions avail against the last, and there is sometimes no alternative but to expect a relapse, and deal with it as promptly as may be. Those whose work compels them to be a great deal out of doors should protect the part as well as they can from wind and sun; but they have a hard and sometimes an impossible task before them, for exposure to such agencies is often inseparable from the work by which they live.

It has several times been noticed that an attack of erysipelas has materially influenced lupus for the better, setting up a healthy reaction when nothing else had availed, just as it does when it fastens on a sluggish ulcer. I have never seen this myself, and, indeed, we have never had any erysipelas since the hospital was opened; but a girl, suffering from intractable lupus, which had extensively ulcerated the lips and cheek at the left side of the face, was sent for change of air to the convalescent home, and while there was attacked with erysipelas. Some weeks after this I had an opportunity of examining her, and found that a great improvement had certainly taken place; the ulceration on the coral surface of the lips was nearly healed, and a great deal of the adjacent skin was beginning to show the bleached, scarred surface seen after lupus has been cured. Looking to such facts, the question naturally arises as to whether it would be legitimate practice to place a lupus patient in a ward where erysipelas had broken out, and thus invite an attack of this disease; for my part, if suffering from such a loathsome, disfiguring complaint as lupus, I should certainly ask that this might be done for me. Anyhow, the suggestion, if acted upon, would open up a wide field for experiment, and in due time a vivid description might appear of the struggle for mastery between the bacillus of lupus and the micro-organisms of erysipelas—a conflict even more desperate than that of the microbe and phagocyte, of which we had such interesting narratives, peculiarly redolent of imagination, coolly avowed, indeed, to have been engendered by it, and lamentably wanting in evidence.

It is now so much the fashion in speaking of lupus, and, indeed, of many other maladies, simply to bring forward a case in which some new remedy is effecting a cure or materially relieving the symptoms, and there to leave the subject, that I feel doubtful whether the reader will care to go into the question of what are the chances of cure under the system recommended. The possibility of comparing these with the success effected by other methods is negatived by the scantiness of authentic records on this head—at least I have found little in the shape of an endeavour to grapple with the problem. Lugol's cases were too few to admit of any inference being drawn from them. Dr Piffard's experience affords us some most valuable information. In 1877 he published an account of twenty-five cases, sixteen of which were successes. Out of eight of these, treated by excision only, six were successful, two failures; while of five treated by excision or scraping, both followed by the actual cautery—the method which he prefers—all were successful. Again, in 1879, he communicated the particulars of nine more cases. One, treated by excision only, was a cure; of the remaining eight, six were successful, one a case of improvement, one was a failure. Quite recently, Mr Howieson of Clifton, in a paper read before the British Medical Association, gave the particulars of ten cases treated locally with hyposulphite of soda solution, forty grains to the ounce, followed by dilute muriatic acid, five minims to the ounce, with the object of setting free "nascent sulphur and sulphurous acid deep down in the skin structures." Of these ten, one seems to have been absolutely cured, one nearly so.

Such are the few facts which I have been able to glean. On the information conveyed by text-books on diseases of the skin I do not propose to touch. It is generally restricted to the recommendation of the stereotyped remedies, from which we cannot always gather whether any one of them, or any combination of them, has ever been successful; what the relation is of cures to failures in the hands of the various authors; to what particular forms and stages of the disease the different remedies are applicable; and, lastly, whether, when all the steps required by an author as necessary for success have been taken, we can rely on curing any individual case of lupus by the most persevering use of them. I presume a certain value attaches to this mode of writing, because the system is so persistently maintained, but I have not myself been able to discover it. As to my own success or insuccess I have no statistics to offer, having so often found it impossible to trace the cases to the end. I can, therefore, only say that the treatment recommended has answered infinitely better in my hands than tonics and caustics ever did, and that by means of it the majority of those patients, who give treatment a fair trial, are either relieved or cured, equally whether suffering from the affection on the head, face, or limbs; lupus of the hand presenting, perhaps, the greates difficulties of all, and twice in my experience defying treatment so long that the patients left off attending—one only partially, the other scarcely at all relieved. Multiple lupus, too, affecting the limbs, hands, and feet, I have sometimes found refractory to it in the case of out-patients, and only to be satisfactorily treated in the wards. I may here add one thing which has surprised me very much, and that is the slight amount of deformity often left after a lupoid patch, treated in this way, had healed up, the cicatrix becoming peculiarly vascular in some cases.

But only too often treatment never has a fair trial; there are always plenty of people who never have observed, and never mean to observe, the measures necessary for cure. Foremost among these are the incurably perverse patients, who contrive to misunderstand every direction given them, and who, whether they deceive themselves or not, seem always bent on deceiving the medical attendant, affirming that they have sedulously followed up treatment when it is clear that they have done nothing of the kind, and justifying themselves with such pertinacity that I have often thought such people must labour under some affection of the brain. Next we have the incorrigibly lazy, whom neither the ravages of the disease nor the entreaties of relatives can induce to make one rational effort for the purpose of being freed from such a misery as lupus. One might think that the first encroachments of a disfiguring affection of the skin would impel any person attacked by it, especially when that person was a woman, to seek relief at any sacrifice of time and trouble, to submit to any restraint requisite for cure. But it is not so. A girl, with a large patch of lupus on the left jaw and neck, allowed it to go its way for more than two years without doing anything for it, though she was living in the immediate vicinity of a hospital devoted to diseases of the skin, and not a quarter of a mile from a general hospital. One young man, fearfully disfigured and just beginning to mend, left the hospital because he was not allowed to go out as much as he liked in raw, cold weather, which always aggravated the disease; and I am frequently obliged to threaten with immediate dismissal patients who seek to excuse their irregular attendance by the most frivolous pretext.

Next come the helpless, born in poverty or doomed to sink into it, with whom the wolf is always at the door, and life such a hopeless struggle that they have little time and little heart to attend to anything beyond its daily wants, with whom the question is not to ward off disfigurement, bnt to keep cold and hunger from the hearth. With these medicine will never be able to deal. The philanthropist may strive to better their lot; the pedant, who affects to believe that education is the panacea for all social ills, may proclaim that, by elevating the minds of these outcasts through the medium of his nostrum, he will rouse them to shake off the apathy which stands in the way of cure. It is all in vain. When the philanthropist and pedant can infuse reason into a brain preoccupied with sordid cares, then, indeed, they may persuade such patients to attend to their maladies, but till then they will continue to suffer. But, apart from the helpless, there are numbers of struggling but right-meaning persons who are constantly shifting their quarters because they must go whither their work calls them. Others, too, there are whom daily toil chains fast to the spot all day long, with whom to leave work means to want food later on; some too poor to bear the petty cost of travelling to the hospital; and others too weakly to support the fatigue of coming frequently enough to allow of any good being done. The upshot of all this is, that I never feel confident about a lupus patient attending regularly till experience has shown that this is likely to be the case.

A distinguished physician, attached to one of the largest London hospitals, not very long ago asked, in the course of a lecture, whether any man could say that he "ever got lupus out of the system." This is a fair instance of the way in which the subject is often dealt with. The question seems legitimate enough when levelled at the incomplete accounts so often met with of the real and ultimate effects of treatment; and, duly weighed, might serve as a warning to men to tell us definitely what can be done in the way of cure in lupus and what cannot be done, where the most hopeful must cease to hope, and where our knowledge of its pathology ends. But in itself the question is not legitimate; it would never have been put in such terms had our knowledge of the disease and its therapeutics had been reduced to precise form and established on a lasting base. I doubt if the lecturer himself could have described with exactness what he meant by getting lupus out of the system, or under what form he supposed it to exist while in the system. The issue raised, however, even in this rather crude shape, is of great importance to the subject, for it reflects the widespread belief in the incurability of lupus which I have so often heard expressed; as it must mean either that the disease cannot be cured even in appearance—a belief for which there is, as regards many cases at least, no justification—or that, if apparently cured, the unhealthy disposition to it is never overcome, and the disease infallibly returns; to which the rejoinder must be, that time is needed to decide whether such cures as those mentioned in the foregoing pages are lasting or not, and that, even if a relapse has to be counted on, still immunity from suffering for years, or even for months, is a priceless boon to those labouring under lupus.

VI.—DUNFERMLINE AND WEST FIFE SANATORIUM.

By T. G. Nasmyth, M.D., D.Sc., D.P.H. Camb., F.R.S.E., County and District Medical Officer, Fife and Clackmannan.

Hospitals have been provided for the reception of the sick from earliest times. It is known that hospitals, supported by Government, existed in India, Persia, and Arabia before the Christian era. The Buddhists cut on rocks their edicts on hospitals dating as far back as 220 B.C.; and even it is declared, on apparently trustworthy information, that the sick were treated in the temples of Æsculapius as far back as 1124 B.C., but what is of more interest as regards the present subject, portions of the buildings were set apart for the treatment of infectious cases. The first Christian hospital was founded at Bethlehem by St Jerome in the year A.D. 300, and the word "hospital" was used by him to denote buildings exclusively set aside for the reception and treatment of the sick.

At this time my intention is to describe shortly an Isolation Hospital to be established near Dunfermline for the reception of infectious cases, which seems specially worthy of notice, from the fact that the plans for the proposed hospital have received the very highest praise from the Board of Supervision and their Medical Officer, Dr Littlejohn. Apart altogether from the merits of the plans, which will afterwards be referred to, the arrangements for combination between the various burgh authorities and Dunfermline District Committee for the establishment of a joint hospital are worthy of consideration, as they mark an epoch in the new system of sanitary administration, as under the old system of parochialism and the policy of *laissez-faire* which pertained under the Local Authorities, now superseded by District Committees, it was almost impossible to arrange for the union of Local Authorities for any public health purposes.

It is now eight years since I advocated the establishment of a joint hospital for the West of Fife, and urged the Local Authorities with which I was connected to enter into such a scheme as the present one. Meetings were held, but no definite resolution was arrived at, and no action was taken.

The Public Health Act of 1867 provides for hospitals being erected for the sick or for the use of the inhabitants, and two or more contiguous Local Authorities may combine to provide a common hospital. It is not specially mentioned that hospitals erected by a Local Authority are purely for the reception and treatment of infectious diseases, but this is inferred; and the few hospitals—such as they are—that have been erected by Local Authorities in Fife are for the reception of infectious diseases.

It may be a matter of surprise to those who are not familiar with the Public Health (Scotland) Act, that it is not an imperative duty for Local Authorities to provide hospitals, but that it is permissive, as the sections dealing with this question are always toned down by the word "may," which in practice means "may not," and what was certainly a moral if not a legal duty was almost universally neglected. If this duty had never been imposed on Local Authorities, and it had been left to the beneficence and charity of individuals, there can be little doubt, judging by the examples of cottage hospitals being erected and maintained by private generosity, that many hospitals for infectious cases would have been established over the country.

The sufferings of the sick poor always attract sympathy and attention from their own intrinsic circumstances, but when these sufferings are associated with the property of infectiveness, the instincts of self-preservation prompt the generosity of the patron. Dives may forget sick Lazarus at his gates, but he cannot ignore him when he is infective without manifest danger of Lazarus proving his claims of brotherhood. In *Past and Present* Carlyle refers to the Irish widow, whose husband had died of typhus, and who wandered about seeking help for herself and her three children, and found none, and finally returned to her home, and proved her "sisterhood" by starting an epidemic which killed seventeen people. The duty, however, having been imposed on Local Authorities by statute is perhaps a sufficient reason why private individuals so rarely ever endow infectious diseases hospitals.

In giving an account of the hospital proposed to be built, it is desirable to go back to its earliest history. Shortly after my appointment as Medical Officer to the County and Districts, naturally it was one of my first duties to report on the means of hospital accommodation available for the ten parishes constituting the district. That was an easy task, as there was no suitable accommodation in existence, and in lengthy reports the pressing necessity of acquiring suitable hospital accommodation for infectious cases was set forth. In these reports the ruling principle of unity of sanitary administration was set forth, and to secure this as far as possible, and on the grounds of economy, efficiency, and good management, I strongly urged the desirability of co-operation between the Local Authorities of the burghs and district for the provision of hospital accommodation. Numerous meetings were held, many communications passed between the various Authorities, and at one time it appeared that all would end in failure, so that the District Committee would have been left to provide the necessary accommodation for their own area, the burghs being left quite unprovided for. That this result would have happened there can be no doubt, if it had not been for the able management, tact, and diplomatic skill of Lord Elgin, chairman of the District Committee, and it is a pleasure as well as a duty to give him credit for the successful issue of the negotiations between the various parties concerned.

The principles which were accepted by the joint committee appointed to deal with the whole question will be of interest to other Authorities who contemplate such a combination as has been entered into in Dunfermline district, and are as follows:—

1. The capital cost of the hospital and permanent charges, as between burghs and district, to be allocated according to population and the assessable valuation for Public Health purposes of the district and burghs respectively. The basis of the annual charges to be subject to review after each decennial census.

2. The permanent annual charges, such as caretakers' wages, upkeep, and taxes, to be borne in the same way.

3. The Local Authorities concerned to have an equal right to send patients to the hospital, paying the board of such patients such rates as may be fixed from time to time by the Hospital Committee.

Site of Hospital.—The next step in advance was to select a site, and in endeavouring to do so the well-known conditions which should be found in connexion with every healthy dwelling, whether school, hospital, or ordinary dwelling, were kept in view. These conditions summarized are as follows:—

a. A dry site and not malarious, and an aspect which gives light and cheerfulness.

b. A site which provides for immediate and perfect sewage removal.

c. A site which enables the building to be provided with a bountiful supply of pure water under pressure.

In addition to those general ruling principles, the site must, in the case of an infectious diseases hospital, provide for its complete isolation, and at the same time be within a reasonable distance of the medical attendant. It is not an easy matter in any one site to find all these conditions existing, but the site selected as nearly as possible meets them all. The site finally chosen is on the farm of West Baldridge, just outside the municipal boundary of Dunfermline, and is about 2½ acres in extent. The Dunfermline corporation water main, sewers, and gas main are all within easy distance, and a fairly good private road passes in front of the proposed hospital. The site has a southern exposure, and slopes gently to the south, providing excellent fall for the hospital sewers. On the north the hospital will be sheltered by the high background, and judicious planting of trees will ultimately provide better shelter, besides giving a more picturesque aspect.

In the printed instructions to architects who were invited to send in plans, the suggestions for hospital designs issued by the Board of Supervision and by the Local Government Board were to be kept in view, but this was not meant in any way to prevent originality of arrangement or construction of the various hospital units. Architects were further enjoined not to sacrifice efficiency of arrangement or excellence of workmanship either to architectural effect or to economy. In response to this invitation a large number of plans were sent in, but owing to many having exceeded the maximum sum which the joint committee thought the building should cost, the final competition rested with ten sets of plans, and Dr Morris, Medical Officer of Health for Dunfermline, and myself sent in separate reports to the committee on these.

In my report to the joint committee I stated,—"In the memorandum with which all architects who send in plans were provided, a few general principles were given to guide them to a certain extent. The leading idea was to provide an infectious diseases hospital for the treatment of two types of infectious disease running concurrently in the two sexes, and the accommodation not to exceed thirty-five beds. The competitors were not expected to be bound hand and foot to follow any particular scheme, but to adapt their plans to suit the site and the circumstances of the case."

In the requirements of the present case there were certain difficulties to be encountered, which allowed considerable scope for originality of design and disposition of the buildings, for in providing accommodation for thirty-five patients suffering from two types of fevers, and thus necessitating their separation, how was this to be done adequately and with due allowance for the unequal numbers of two types of infectious disease running together? The other details of design could be arranged without any departure from recognised principles. The diseases that will require to be treated at the same time will be scarlet and enteric fevers, or measles and enteric fever. As is well known, scarlet fever and measles will be in excess of enteric fever. Epidemics of scarlet fever and measles occur in cycles, while enteric fever is more or less prevalent during the year. We may assume that one pavilion will be occupied more or less constantly with enteric fever. During an epidemic of scarlet fever or measles the pavilion devoted to these will be full to overflowing. This at once points to the objections to having the pavilions of equal size, and having then no provision for the excessive incidence of one disease over another. No plans which do not provide for this contingency can in my mind be considered satisfactory. To enable you to decide which cases will have to be provided for in the district and burghs, I have gone over the mortality returns for Dunfermline burgh for five years, and judging by the mortality, there must have been at least 300 cases of scarlet fever, 158 cases of enteric, or nearly 2 cases of scarlet fever to 1 of enteric. This proportion must be taken into consideration in allocating beds for these two diseases. The next most important consideration is the disposition of the pavilions and administrative block, and on these points authorities are agreed that the best arrangement is to place pavilions on a north and south line, so that every side will receive sunshine at some part of the day, and at different seasons of the year. The arrangement of the pavilions determines the position of the administrative block, and in this case it falls naturally into the middle between the pavilions. In the east and west line arrangement the administrative block must of necessity be a long way from the extreme end of a pavilion, and this means greater difficulty of management and extra work for the executive staff of the hospital.

Each plan examined by me was reported on in as impartial a manner as possible; the good points and the bad ones were brought out as far as possible, and my report summed up in favour of the plans sent in by Messrs Johnstone & Burnie of Edinburgh, as follows:—

"The plans of these gentlemen alone show originality, and meet the requirements of the governing principles of hospital accommodation for infectious diseases. If there are faults I have not been able to find them, as they meet my views in every respect. In all the details of isolation, disposition of the various blocks, heating, lighting, ventilation, and disinfection, the most modern principles have been followed. The plans alone provide for the treatment of unequal numbers of infectious diseases. Thus, by using the east and west pavilions for, say, scarlet fever, 24 cases could be treated, leaving the north one for 8 cases of enteric fever. By using the north pavilion and either the east or west, 20 cases of scarlet fever could be treated, and 12 of enteric fever; or by using all three pavilions separately, three types of infectious disease could be completely isolated. The disposition of the north pavilion is open to the criticism I make regarding an east and west line arrangement, but with these exceptions—very important ones—the pavilion is short, and has large windows at each end, through which sunshine will pour into the wards during some period of the day."

Description of the Hospital.—The arrangement of the various units will be best understood by reference to the perspective view of the design.

The hospital is to be erected on a site of two and a half acres in extent at Milesmark, possessing the advantages of a southern exposure, good fall for drainage purposes, and a quiet, little-frequented situation in the open country, within easy access of the city. It consists of a central "Administrative Building," flanked by two semi-detached "Quarantine Wards" for the reception of doubtful cases. Three isolated "Fever Pavilions" on the north-east and west, placed at a distance of from 40 to 60 feet from the Administrative Building, and connected with it by means of covered ways having open sides; and, lastly, a block of offices placed at the extreme western angle. The site is to be enclosed with a substantial stone wall 5 feet high, having a front entrance gateway for the hospital buildings and a side gateway for the offices; and all the various buildings are to be kept at the regulation distance of 40 feet within the boundary line. A remarkable feature of the plan is the extreme simplicity of the pavilions, and of their arrangement on the site in such a way as to allow every window in the four walls of each to be illuminated by the sun for several hours a day in summer.

The "Administrative Building" is placed in the centre of the hospital, in its southern side, and contains the kitchen, scullery, larder, store rooms for linen and groceries, matrons' and doctors' rooms, on the ground floor, and three large bedrooms, with bathroom and napery store upstairs, in the quietest part of the building, for the nurses while off duty; while in the basement will be placed the "Heating Chamber" and coal cellar.

The male and female "Quarantine Wards," for the reception of doubtful cases, are attached to either side of the Administrative Building in the form of wings, but are wholly isolated from it and from each other by having separate entrances. Each ward consists of an apartment 24 feet by 12 feet, 14 feet 6 inches high—large enough for two beds—overlooked by means of air-tight observation windows in the walls of the matron's and doctor's rooms, with the necessary lavatory apartment separated from them by a lobby having cross ventilation.

The east and west "Fever Pavilions" contain male and female wards for six beds each, having separate suites of bathrooms and lavatory accommodation, separated from them by lobbies having cross ventilation, and these wards are overlooked by means of air-tight observation windows in the walls of the nurses' duty-room, which divide them. In the adjacent lobby a movable bath on wheels is to be kept for occasional use at the patients' bedsides, and a small sink closet or pantry completes the equipment of each pavilion.

The North Fever Pavilion is of smaller size, having male and female wards for four beds each, separated by the nurses' duty-room as before, and having separate lavatory accommodation, but only one bathroom common to both. This pavilion will be used for convalescent patients whenever there are not more than two kinds of fever to be treated in the hospital, and while the main fever pavilions are not too crowded. It also admits of scarlet fever and typhoid fever being treated in the proportion of two to one when necessary.

All these fever, quarantine, and convalescent wards provide 144 square feet floor space, 12 lineal feet wall space, and 2000 feet of cubic air space to each bed, or 2500 cubic feet if the ceiling is pointed, as in the Glasgow Fever Hospital, instead of flat. The total number of beds is 36, exclusive of the future extension of 12 beds. All the wards are accessible to the ambulance waggon, which will stand under the shelter of the covered ways whilst the patients are being carried into the wards.

The offices consist of wash-house and laundry, with a drying closet between them, ambulance and coal sheds, mortuary, with central table and top light and water supply for post-mortem examinations, a tool-house, and a small chamber for disinfecting by means of sulphur fumes.

A separate building is also shown on the plans for Washington Lyon's patent super-heated steam disinfector, which is found to be the only safe and reliable means of disinfecting clothing and other articles.

The drainage system is to be arranged in strict accordance with the most improved principles of modern sanitation, which consist in keeping the drain pipes and traps outside the buildings of as small bore as possible, and laying them in perfectly straight lines, with manholes and inspection eyes at all angles and junctions.

The details of external elevations, warming, and ventilation are not yet settled; but it may be mentioned that the architects have submitted alternative elevations in the old Scottish seventeenth century style, with crow-stepped gables and other characteristic features (as shown in our illustration),[1] and another in the old English style of same period, with overhanging eaves and gables, filled in with half timbered work and white cement panels.

Alternative schemes of warming and ventilation were proposed, namely, by the ordinary system of open fires, aided by low pressure hot-water pipes carried round all the wards, corridors, and lavatory apartments, and into the recesses of the window breasts, for the purpose of warming the fresh air before it enters the ward; and by Key's patent combined system of warming and ventilation by the mechanical propulsion of screened, washed, and warmed (or cooled!) fresh air into every part of the building.

Key's system of ventilation and warming was ultimately adopted. This system, carried out in the Victoria Hospital, Glasgow, appears to me to be a perfect solution of the intricate problems of ventilation and warming of such buildings as schools, asylums, and hospitals. In the Victoria Hospital the incoming air, which passes down a vertical shaft 16 feet long by 3 feet 2 inches wide, built of white glazed bricks, is driven into the wards by means of two Blackman fans. Each fan is driven by a four-horse power Crossley gas engine. From the main air inlet branches pass to the various wards; air enters each ward by wide, shallow ducts placed along the walls 5 feet above the floor. The incoming air drives out the air which had previously filled the wards through openings at the floor levels. The unique features of the system consist in the air previous to its discharge into the wards being filtered, washed, and warmed. This is effected by passing the incoming air through a screen made of horse-hair and hemp, measuring 16 feet by 12 feet. There is a constant trickling of water down the screen, by which it is kept wet, and the air passing through it becomes deprived of its dust, soot, and other solid particles. An automatic flushing tank discharges 20 gallons of water every hour down the screen, which removes the dust which has collected in the interval. After passing through the screen the air is heated (when necessary) by passing through coils of steam-heated pipes. So effectually is the air purified from dust and soot that it has not been necessary to clean the wards for three years, and although fogs are frequently enough found outside the wards, none are ever found inside. The air in the wards is removed six times an hour without producing

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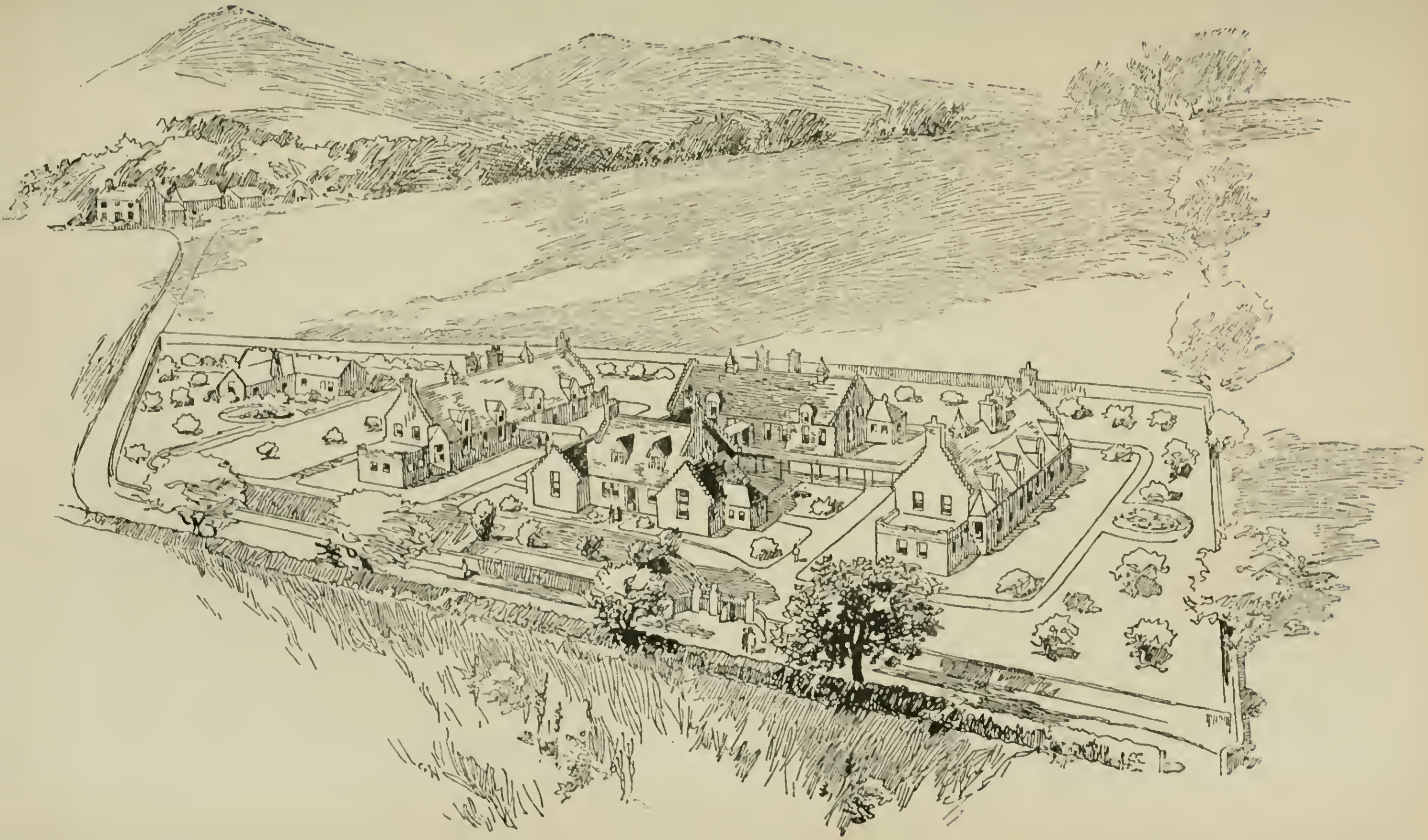
[1] The proprietor of the *Dunfermline Saturday Press* has kindly permitted me to reproduce the accompanying sketch, which appeared in that journal some time ago.



appreciable drafts. As no fires are necessary in the wards, this is a great saving of labour, both from carrying of coals and from cleaning. The air of the wards was recently examined by Mr Foggie of Dundee, and to whom I am indebted for the following report:—

Results of Analysis of Air in Victoria Infirmary, Glasgow, December and January 1891-92.

	Near Patients.			Centre of Ward, 3′, 6′, and 9′ above Floor.			In Main Outlets in Roof.		
	Lowest.	Highest.	Average.	Average.	Highest.	Lowest.	Lowest.	Highest.	Average.
No. present, . . .	25	28	27						
Cub. space per head,	Cub. ft. 938	Cub. ft. 1050	Cub. ft. 994						
Temp. ° Fahr., . .	60	62	61	...	...	...	62	64	63
Carbonic acid, . .	4·97	6·97	5·82	8·5	9·8	4·8	3·8	5·0	4·27
Organic matter, . .	...	24	7·6	·5	1·5	...	6·4	18·0	10·3
Total micros., . . .	...	7	1·2	·5	2·0				
Bacteria, ...	...	6	1·0	·22	1·				
Moulds, ...	...	1	·27	·22	1·				

The CO^2 is in vols. per 10,000, the organic matter is in vols. oxygen required to bleach the organic matter in one million vols. air. The micro-organisms are per litre.

In order to check the micro-organisms, I paid a second visit in January, as I was certain that something was at fault with the number of micro-organisms found. In the first determinations I used Carnelley flasks, but in the second I used Hesse tubes, and aspirated 4 litres. The figures found given below confirmed the first analysis.

Micro-organisms in 4 *Litres of Air.*

	Bact.	Moulds.	Total.
Ward 1	0	0	0
„ 2	0	1	1
„ 3	3	2	5

Whilst No. 3 was being aspirated the bedcovers in the immediate vicinity were changed.

It will be noted that the cubic space per patient is distinctly low, viz., an average of 994 cubic feet, and with an imperfect system of ventilation, the CO_2 of organic impurity would in consequence be very high. In certain hospitals reported on by the late Prof. de Chaumont, where the cubic space per person was from 1200 to 1600 cubic feet, the amount of CO_2 per 10,000 cubic volumes varied from 15·3 to 20·3, while in the Victoria wards, near the patients, the highest was found to be 6·9, and at the centre of the wards the highest was 8·5, being about *one-half* of that found by Prof. de Chaumont.

The method of testing the organic matter was that used by the late Prof. Carnelley in his experiments on the air of schools and other buildings.

The highest results of 24 and 7·6, shown in experiments near to patients, are explained by Mr Foggie to be due to vitiation of the air by the patients at the time the experiments were being made; and the outgoing air at its very worst only shows 18· vols. of O needed to bleach the organic matter present.

The number of micro-organisms found in the air of the wards in Victoria Hospital was found to be remarkably low in Mr Foggie's check experiments; in the worst specimen only 3 bacterial and 2 mould growths were found.

Wall Construction.—All the outer walls are to be of hollow construction, having an inner lining of brick plastered with patent adamant plaster, and an air space of 3 inches. All the internal corners of walls, floors, and ceilings are to be rounded and constructed so as to present the smallest possible ledges for dust to accumulate upon. The whole surface of ground within the buildings is to be covered with a thick layer of boiling asphalte, to keep out damp and vermin.

It is intended to be a model hospital for infectious diseases, far in advance of existing buildings of the kind in Scotland, but by no means in excess of the present requirements of the English Local Government Board as to cubic and floor space, and other essentials of an efficient fever hospital. The cost is estimated at between £5000 and £6000.

The Notification of Infectious Diseases Act has been in operation in the county district of Dunfermline since October 1891, but has not been adopted in any of the burghs. The provision of such an efficient hospital as has been agreed upon will be rendered of comparatively little value if the burgh authorities are content to drag in the rear of sanitary progress, and do not likewise adopt this Act. By the time this hospital is completed a new Public Health Act for Scotland may be an accomplished fact, by which continuity and equality of sanitary administration may be compulsory. Such a consummation is earnestly to be wished for. Meantime the omens are favourable.

VII.—NOTE ON VON ESMARCH'S GELATIN ROLL CULTURES.

By Alexander C. Houston, M.B., D.Sc., Edinburgh.

The method of making gelatin roll cultures was introduced by Von Esmarch as a modification of Koch's plate process. Certain difficulties, however, arise in the carrying out of the process, which limit its usefulness, and which cannot be entirely overcome even by experienced manipulation.

The following quotation from Salomonsen's *Bacteriological Technology*, page 57, shows what is meant by roll cultures, and also indicates the difficulties to which I have referred :—

"The distribution of the gelatin over the wall of the tube is secured simultaneously with its hardening in the following manner: The projecting portion of the cotton plug is clipped or singed off, and the whole covered with a tight-fitting rubber cap to keep the cotton dry, and the tube laid in a dish of cold water, preferably ice-water. While the tube floats on the water, it is kept with one hand as nearly horizontal as possible, while with the other it is rotated until the gelatin has become solid in a uniform layer over the entire inside of the tube, which is then dried off, and the rubber cap removed. Occasionally the cotton plug becomes covered with so thick a layer of gelatin as to prevent the access of air to the culture in an injurious manner."

Fraenkel, again (*Text-book of Bacteriology*, page 99), when writing of this process, says :—

"It sometimes happens that in one such tube no growth takes place, while it develops luxuriantly in the others. On examination, it is found that the gelatin covered the lower end of the cotton plug with a thick layer, and prevented the access of air to the interior. . . . Sometimes such numbers of air-bubbles pass from the cotton-wool into the interior of the tube during the consolidation of the gelatin that the latter is completely filled with them."

It is obvious that it must be difficult to rotate a test-tube evenly and rapidly, because of its large diameter, and also because of the benumbing effect of the cold water on the fingers. Further, if a uniform layer of gelatin is obtained, it can only be by soiling the plug with the gelatin, which not only has the disadvantages already pointed out, but offers a danger of contamination of the contents of the tube, and interferes with the removal of the plug for the purpose of examining the colonies.

To overcome these difficulties, I adopted the following plan :—

(1.) The test-tubes are slightly constricted or necked near their open ends, in the way shown in Fig. 1. This entirely prevents the soiling of the plug, the constriction acting as a sort of circular weir or barrier, which prevents the gelatin from reaching the cotton. The constriction or necking is not so great as to cause any difficulty in afterwards examining the colonies growing inside the tube, with the platinum needle.

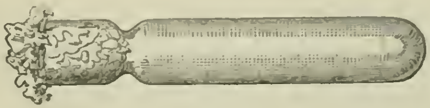


FIG. 1.

(2.) A tube so necked is placed for rotation in a wire frame, which is made in the following simple manner. Two bits of soft iron wire, rather more than one-eighth of an inch in diameter, are bent into the shape shown in Fig. 2, and joined together at *a*, a^1, and at *b*, b^1, either by solder, or, more simply, by a ligature of thin copper wire.

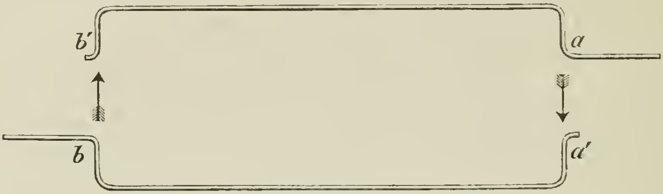


FIG. 2.

The tube is kept in position in the frame by two rubber bands, as shown in Fig. 3. The frame is held at *c* and c^1, Fig. 3, between the forefinger and thumb of each hand, and rotation is made under a gently running tap.

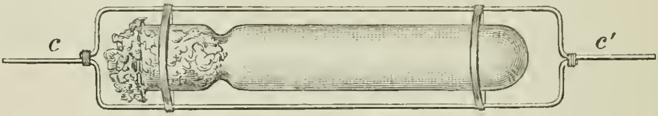


FIG. 3.

Although rotation is made chiefly in the horizontal plane, it is desirable sometimes to tilt the frame slightly, because the gelatin as it stiffens shows a tendency to collect into masses instead of remaining spread out as a thin layer.

The advantages obtained by this method of making roll cultures are as follows:—

(1.) In this way, and so far as is seen, only in this or some such way, can a uniform layer of gelatin be obtained.

(2.) The fingers are not benumbed by coming into contact with cold water.

(3.) Soiling of the plug by the gelatin is completely obviated.

(4.) It is much easier to rotate the tube horizontally and rapidly when it is placed in the wire frame than to rotate it when the tube itself is held between the fingers, and when the fingers are immersed in cold water.

(5.) All contact between the warm hands and the tube is avoided, and the gelatin thus solidifies more rapidly.

(6.) No rubber cap is needed, and no iced water. Even the running water is not always necessary.

The figures are drawn to a scale of one-third of full size.

VIII.—NOTES ON RECENT INTESTINAL MEDICINE.

By Alex. Lockhart Gillespie, M.D., F.R.C.P.E., Medical Registrar, Edinburgh Royal Infirmary.

For some time past there has been a "boom," to use a broking phrase, in intestinal medicine. The stomach having yielded up most of its pathological secrets, except the secret of their cure, and having been found not to be so very important in the animal economy either in health or disease, what better scapegoat could be found than one which was unable to answer plainly for itself, however often it might rebel? Its ptomaines, leucomaines, poisonous proteids, absorbed as such, and not metamorphosed into the innocuous albumen as in health, the absorption of gases, all are called on to do duty as the cause of various complaints. Chlorosis is due to the refusal of the jejunal wall to allow sufficient iron to enter the system, or to the too great haste of the wall of the ileum to get rid of the iron again; pernicious anæmia to the absorption of poisonous substances, produced by the fermentation and stasis of the contents of the large intestine. The many symptoms usually attributed to gastric indigestion are not caused by reflex nervous irritation from an overloaded or overtaxed stomach, they are due to auto-intoxication, to direct irritation of the nerves and nervous centres. The well-being of that envelope of the digestive tract which we call man is entirely dependent on the growth of micro-organisms: if they are not too numerous and of the right varieties all goes well, but if, by reason of good living or stasis, they luxuriate, all kinds of horrors ensue. Such is the burden of a paper by Dr Van Valzah of New York (1),[1] a cleverly written paper, but somewhat verbose. Ill-regulated diet brings on neurasthenia, neurasthenia aggravates the intestinal indigestion, and a vicious circle is established. How is this to be cured? Not by drugs, not even by antiseptics, but by diet and exercise. And the diet is divided into three classes—the exclusive, the rigid, and the advanced. The first, lean meat made into a pulp; the second, beef and mutton cooked *secundum artem*, white fish, oysters, celery, and stale crusts, with a little whisky carefully diluted; the third, anything else except veal, lamb, pork, goose, duck, cod, herring or salmon; no old or raw vegetables; no pastry; no very acid or sweet fruits; no cheese. Such a diet, of course, limits the amount of sugar and starch ingested to almost *nil* at first, and then gradually increases it, the result being that in the exclusive diet the duodenum has almost no work to do, and the liver very little more, while in the rigid diet neither has as much as will incommode them. They get a rest, and are soon able for their ordinary work again.

Judging from a paper by Lusk on the formation of glycogen

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[1] The figures within parentheses refer to bibliography at end of article.

(2), neither galactose nor milk sugar are changed into the anhydride of dextrose in the liver, and may thus be given if wished in the diet. Lusk points out that dextrose, cane sugar, lævulose, and maltose, largely increase the quantity of glycogen recoverable from the liver, while milk sugar, if given in sufficiently large amounts, can be recovered in the same form from the urine. If these sugars, however, be injected hypodermatically, and not taken by the mouth, glycogen is only increased in amount by dextrose and lævulose. In other words, the digestive secretions invert cane sugar—·3 per cent. hydrochloric acid does so rapidly,—while the liver itself has no such power. With regard to dextrose and lævulose, the liver cells can form the anhydride of the first, and either form the same substance directly from the second or after changing it into dextrose. While glycogen can be formed from albumen itself, many observers hold that this form is used by the liver as a reserve, the glycogen obtained from dextrose being first burned up in the economy.

Poehl, a few years ago, demonstrated the occurrence after meals of a transitory leucocytosis in all healthy individuals. What became of the surplus numbers between meals was not stated; they perhaps, however, resorted to the tonsils and lymphatic glands. At the time this increase was looked on as due to greater activity and splitting of the parent cells while they passed through the intestinal vessels in blood charged with extra nourishment. Now that the intestinal putrefaction theory is so far advanced, it perhaps may be supposed that some of them are phagocytes on the outlook for stray bacilli coli communes trying to find their way into the many parts of the body in which they have been discovered during the last year or two. If so, some may manage to pass through the intestinal wall, and help, in cases of dysentery, to complicate this disease, forming the variety amœbic dysentery, described by Kartulis in Egypt and by Councilman and Osler in America, of which a case has just been reported by Dr Gerry (3). A patient who was treated for a year for dysentery of an abnormal type, became feverish and worse, with the appearance of a hard tumour below the liver. Surgical interference was thought of, but beforehand Professor Fitz of Harvard was called in. His diagnosis was comprehensive—"Chronic ulcerative colitis, acute paracolitis, and probably amœbic dysentery." And, in truth, amœbæ were discovered, resembling large granular leucocytes. Large enemata of quinine (1 to 5000) were tried, but the patient died. No amœbæ were found post-mortem, but an extensive tract of the colon was ulcerated.

The bacillus coli communis mentioned above has recently become more prominent from the doubt whether or not it is one of the causes of typhoid fever; be such the case or not, this inhabitant of the intestinal canal is usually harmless, but seems to acquire virulence in the presence of catarrhal states of the bowel, and then, according to Adenot of Lyons, becomes capable of giving rise to typhlitis and peritonitis. Dr Christopher, in a paper on "Retained Feces" (4),—he spells fæces with an *e*, although *cæcum* retains its diphthong,—points out how often impacted masses give rise to the catarrh necessary to allow the bacillus to obtain a footing. He details, besides, several cases of constipation simulating other diseases—typhoid fever, structural disease of the spinal cord, confusional insanity with great muscular wasting, and renal colic. Enemata of Listerine and common salt, in his hands, act best as a curative means, while Dr Todd (5) finds massage and suppositories of glycerine, sulphur, nux vomica, and henbane of most service. Massage is best done by the hands, not, as some naval officer has recently suggested, by the patient rolling from side to side in bed on a peculiarly shaped piece of wood.

The tale of the iniquities of the intestinal tract is not yet over, for Dr Watkins, in a paper on Hæmophilia (6), lays the blame of this affection chiefly at its door. A man, a victim to "bleeding," suffered much from epistaxis, which could only be stopped by filling the nares *with plugs of fat bacon* cut to fit them. Cotton-wool plugs were very quickly saturated with blood, and did not suffice to check the flow. When, however, the fat had been absorbed from the bacon, the bleeding commenced again. In searching for a more general hæmostatic the author read Ringer's, and Arthus and Page's work on the coagulation of blood and milk in the absence and presence of inorganic salts. Then he first satisfied himself that there was no want of fibrin in the blood of his patient, the want of which has been said to cause the disease. Then on examining the blood further, he found a considerable diminution in the amount of calcium salts. Now, Arthus and Page demonstrated that the presence of a calcium salt, not the hydrated oxide, was necessary before milk would coagulate. Dr Watkins, therefore, put his patient on lime salts and lime water. The result surprised and delighted him: no bleeding occurred during the treatment, but recurred if the lime was left off. That is to say, that with a large quantity of lime in his intestines the patient was enabled to take sufficient into his blood-stream to keep it properly coagulable; but if he ceased to take the drug, his blood-corpuscles or the serum was unable to hold in solution the amount requisite for the purpose,—a similar mode of reasoning, it appears, being applicable to this case as to cases of anæmia.

In purpura we are to believe that there is a deficiency of sodium salts; in scorbutus, according to Garrod, a want of potassium salts; and in hæmophilia, after Watkins, of calcium salts. The three diseases are characterized by hæmorrhage. The three classes of salts each exert some power over the coagulation of blood.

As illustrating the differences of opinion which exist among physicians as to the causation of diseases, one has only to turn to a paper on Spontaneous Hæmorrhages by Dr Brothers (7), in which he details two cases suggestive of hæmophilia. The cause of this disease is, to his mind, a deficiency in the walls of the bloodvessels, and he quotes Jacobi (8), Sir Andrew Clark (9), and others in support of his contention.

A case of sarcoma of the ileum in a hæmophilia patient is reported from the Tübinger Poliklinic by Dr Roth (10), and the suggestion is made that the tumour started from the degenerated and thinned-out vessels. The patient suffered from hæmorrhage from the stomach, the skin, and elsewhere.

Dr Vopelius has lately published a book—*New Therapeutics*—which is reviewed in the *Medicinische Neuigkeiten.* The principle of this new therapy, of course, is the antisepsis of the intestines: creasote for chronic, lysol for acute affections, while creolin is indicated in diseases of the vascular system. Erysipelas, carbuncles, and inflammations of the joints vanish under creolin; lysol cures scarlet fever, measles, etc.; but the most remarkable thing is, the *speedy disappearance of carcinomata* under the administration of lysol!

It has been pointed out before that total extirpation of the pancreas in the dog was followed promptly by the appearance of sugar in the urine. If a small portion of the gland was left *in situ,* no diabetes mellitus occurred. Minkowski, who first showed this fact in 1889, has prosecuted his researches into this matter further (11), and has found that, even if the whole pancreas be removed from its normal situation, no diabetes occurs if a portion of it be grafted under the skin of the abdomen, provided that the transplanted piece of gland be vascularly connected with the abdominal cavity. If the connecting vessels be ligatured, sugar at once appears in the urine. Subcutaneous injection of pancreas juice or feeding with fresh pancreas had no effect in checking the sugar excretion. *Lævulose, however, was still burnt up in the organism.* Hédon (12), experimenting in the same way, obtained similar results.

The pancreas, then, must have a great and direct influence over the utilization of sugars in the body, but an influence unlike that of the thyroid gland over the cellular tissue, in that vicarious implantation is valueless.

Little new has been published lately with regard to gastric complaints. A paper by Dr Habershon (13) on the dyspepsia and vomiting in phthisis, is worth studying; it includes most tubercular affections under the heading of Phthisis. More startling and subversive of all our preconceived ideas is the discovery (14) that the walls of the human stomach do not move the food in that organ by their intrinsic movements, but that the beats of the heart and the respiratory oscillations of the diaphragm are the chief agents. Dr Handford recorded on a Maury's tambour drum the movements of the stomach of a patient who had undergone the operation of gastrostomy. The movements of the stomach were obtained by means of an indiarubber balloon introduced into the stomach and then blown up. The tracings obtained showed little change whether the stomach was empty or full; the respiratory curves were well marked, while the cardiac curves were especially clear during expiration and when the stomach was empty. As the author points out, however, a source of fallacy may be found in the adhesions between the stomach and the abdominal walls checking the peristaltic movements.

It is also a matter of doubt whether simple peristaltic movements in an organ like the stomach would have any effect on the total capacity of the organ, and therefore on the size of the balloon inserted. Any wave in one part of the wall would be counterbalanced by the necessary relaxation of the portions immediately before and after it.

The results of his analysis of the fluid obtained from the fistula at different hours after food were as follows:—

1. Hydrochloric acid did not appear until two hours or later after a meal.
2. Lactic acid was present in abundance half an hour after taking a full meal, being more quickly produced from meat or beef-tea, less quickly from milk.
3. The highest total acidity was after a meat meal, and was due chiefly to hydrochloric acid.
4. The total acidity per cent. increased from half an hour to three hours after a meal.
5. The sugar had all disappeared within two hours after food. It was formed in abundance both from milk and from bread. Query, Can starch be changed into sugar by organisms at the body temperature?

Salophen (13) is a new drug supposed to split up only in the small intestine, and therefore to be both anti-rheumatic and anti-fermentative. It is shortly acetyl-paramido-salol, and splits up into salicylic acid and acetyl-paramido-phenol. Dr Fröhlich testifies to its great use in rheumatism, the freedom from ill effects observed from its use, and the large dose required before a toxic action is produced,—as much as 7 to 8 grammes for each kilogramme of body weight in rabbits. Further researches are required before its usefulness can be established.

The curious condition described by Virchow and others, and named Enteroptosis, has been attracting some attention lately, both in America and in Germany (16). Many of the "neurotic dyspepsias" are said to be derived from this condition, in which there is descent of all the abdominal viscera. The stomach, which is generally dilated, hangs down like a U-tube, the transverse colon follows suit, while both kidneys become freely movable, the condition of nephroptosis. All descriptions of neuropathic conditions arise —pain, giddiness, dyspepsia, and neurasthenia. The cause is still in question. A loaded colon or a dilated stomach seem most probable. A band round the abdomen relieves all the symptoms speedily; no cure of the prolapse, however, seems possible. The physical signs of enteroptosis are very similar to those familiarly seen in cases of much-dilated stomach, flabby abdominal walls, a swelling or protuberance about the umbilical region, with transverse markings above it.

LITERATURE.

1. "A Clinical Study of Intestinal Indigestion," by W. W. Van Valzah, A.M., M.D., New York, *New York Medical Journal*, July 1892.

2. "Formation of Glycogen after taking Different Varieties of Sugar," by Gresham Lusk, M.D., *Ibid.*, August 1892.

3. "A Case of Amœbic Dysentery," by E. P. Gerry, M.D., *The Journal of the American Medical Association*, July 1892.

4. "Retained Feces," by W. S. Christopher, M.D., *Ibid.*

5. "Preventive Medicine respecting Constipation," by Lyman Beecher Todd, M.D., *The American Practitioner and News.*

6. "Hæmophilia, its Pathology and Treatment," by J. L. Watkins, M.D., *New York Medical Journal*, August 1892.

7. "Notes on Two Cases of Spontaneous Intermittent Hæmorrhages," by A. Brothers, B.S., M.D., *Medical Record*, Sept. 1892.

8. *Brooklyn Medical Journal*, March 1888.

9. Referred to in *Medical Annual*, 1891.

10. "Ueber einen Fall von Sarkom, verbunden mit hämorrhagischer Diathese," von Dr Otto Roth, *Mittheil. ans d. Tübinger Poliklinik*, ii. p. 59. Leipzig, 1892.

11. Minkowski, *Beilage zum Centralblatt für Klin. Med.*, No. 25, 1892.

12. M. E. Hédon, *Gazette Médicale de Paris*, August 13, 1892.

13. "The Gastric Disorders of Phthisis," by S. H. Habershon, M.D., F.R.C.P., *The American Journal of the Medical Sciences*, Oct. 1892.

14. H. Handford, M.D., *Transactions of the Clinical Society of London*, 1892.

15. "Ueber Salophen," von Dr Josef Fröhlich, *Secundärartz, Sonder-abdruck, aus der Wiener Medizinischen Wochenschrift*, Nos. 25–28, 1892.

16. Krez, *Münch. Med. Wochenschrift*, 1892.

Part Second.

REVIEWS.

Disease in Children. A Manual for Students and Practitioners. By JAMES CARMICHAEL, M.D. London and Edinburgh: Young J. Pentland: 1892.

THIS book is one of Pentland's Students' Manuals, and is well worthy to rank with the best of them. We welcome it as the first systematic treatise on the Disease of Children emanating from any Scottish School of Medicine. The title of the book indicates the author's view that disease in children must be studied on the same lines and by the same methods as disease in adults; but he points out in an excellent chapter on the Clinical Examination of the Child the special difficulties which are encountered and the best means of overcoming them. The whole work shows indications of extensive reading and a wide and careful clinical experience; the views put forward by the author, both as regards pathology and treatment, are of what may be called an advanced type; that is to say, they are dominated largely by recent advances in the study of bacteriology and septic infection. Indeed, he goes so far as to include croupous pneumonia among the fevers, and states the opinion that it is generally believed to be infectious—we doubt whether the older race of practitioners will follow him so far—suffice it to say that the pathology of the various diseases, which in most cases is very carefully worked out, is well up to date, and the treatment advocated is practical, judicious, and scientific. To glance briefly at the details of a work which we hope will have a wide circulation, we find in the chapter on School Hygiene some wise and sensible remarks on the dangers of the present system of high pressure and cramming. In the treatment of scarlatina we note he curiously prefers bathing to inunction. In the management of typhoid, as well as in all forms of diarrhœa, special stress is laid on the systematic examination of the stools, and the important indications for treatment to be learned thereby. In an excellent chapter on Tuberculosis, the author advocates strongly the infective nature of the disease, and the necessity of disinfection of all sputa and dejecta from tuberculous patients; and believes that the flesh of infected animals and their milk may readily infect predisposed persons. Scrofulosis he recognises as a distinct habit of the body, not necessarily associated with tubercle, but affording a ready nidus for the tubercular poison. In treating of rickets the pathological anatomy and ætiology are fully considered, and it is pointed out that improper feeding, though an important element, is not the only one in the causation of the disease; and that in its treatment the restoration of a healthy nutrition is the object to be attained. Diseases of the heart and circulation are treated somewhat scantily, on the ground that they resemble in general course and results the same affections in the adult. The diseases of the respiratory system occupy, as they deserve, a much larger space, special attention being devoted to bronchitis and its congeners bronchial catarrh and catarrhal pneumonia. These chapters will well repay perusal, as they convey an excellent pathological and clinical picture of the diseases. We should have liked, however, to see some further notice given to bronchiectasis. As might be expected from Dr Carmichael's previous papers, particular attention is devoted to the feeding of young children in health and disease, and the chapter on this subject is one of the best in the book. He is a thorough believer in the importance of the sterilization of all milk used for food. Further chapters deal with diseases of the tonsils and salivary glands, gastro-intestinal disorders, rheumatism, disorders of the liver and kidneys, and of the lymph glands; to the latter is given as a preface a short description of the anatomical position of the glands in question. Fully 100 pages are devoted to the diseases of the nervous system, which play so important a part in the nosology of childhood. They form a most useful and valuable *résumé* of the subject, being based partly on the most recent writings of neurologists, and partly on his own experience as an hospital physician. The book concludes with short articles on parasitic and skin diseases, and an appendix on dietetics. Dr Boddie has contributed short notices of diabetes mellitus and polyuria. This is essentially a clinical work, and it is illustrated with numerous cases from the author's note-book and with many prescriptions. The old-fashioned practitioner will be surprised by the frequency with which the internal use of mercury is recommended, principally for its antiseptic virtues. We can heartily commend it as a first-rate practical manual for students and practitioners. In point of style it is eminently readable, but we could wish that the author had been a little more careful in reading his proof sheets, as we noted several slips of the pen which will need correction in another edition.

Elements of Human Physiology. By ERNEST H. STARLING, M.D., M.R.C.P., Joint Lecturer on Physiology at Guy's Hospital. London: J. & A. Churchill: 1892.

DR STARLING'S little book is worthy of the highest commendation. It is the best work of its size and kind which has yet appeared. Unfortunately its size is too small, and in kind it partakes, in this at least, somewhat of the cram-book,—that it attempts to give the student not only what he requires for his future study of medicine, but what the traditional examiner may possibly demand of him. To have left out such matter of problematic utility would have increased its value, but might have diminished its sale. For the traditional examiner and his possible useless questions figure largely in the student's mind.

Dr Starling has spared no pains to bring his book abreast of the most modern researches; and we read with pleasure his clear descriptions of the relationship of pulse-wave to heart-beat, of the mechanism of gaseous interchange in the lungs, of the formation of lymph, and of the mode of absorption from the alimentary canal, so different from the statements of the older text-books.

Some parts of the book are much superior to others, and through many of these the influence of Bunge's *Physiological Chemistry* is to be seen. The chief fault in the work is a want of proportion. Such parts as those dealing with circulation and respiration are considered with a fulness which makes the account of the nervous system, of dietetics, and of reproduction appear inadequate. This, however, is simply the result of the author's undertaking the impossible task of including so much in so small a space.

It is to be regretted that the publisher has not been more liberal in his supply of diagrams. Their absence greatly detracts from the usefulness of the book to students.

Naphey's Modern Therapeutics, Medical and Surgical, including the Diseases of Women and Children. A Compendium of Recent Formulæ and Therapeutical Directions from the Practice of Eminent Contemporary Physicians, American and Foreign. Ninth Edition, Revised and Enlarged. Vol. I.: General Medicine and Diseases of Children. By ALLEN J. SMITH, M.D., Assistant Demonstrator of Morbid Anatomy and Pathological Histology, University of Pennsylvania; and J. AUBREY DAVIS, M.D., Assistant Demonstrator of Obstetrics, University of Pennsylvania. Philadelphia: P. Blakiston, Son, & Co. London: Baillière, Tindall, & Cox: 1892.

ABOUT one-fourth of the ninth edition of this large work is new. That it has reached a ninth edition is evidence of its popularity. The plan adopted is, as heretofore, to give quotations from the writings of physicians of all countries with regard to each disease discussed. First a few of the more important paragraphs are inserted, then a list of remedies which have been used for the disease, with short notes added. This arrangement permits a practitioner in a hurry for advice with regard to a remedy to find the required information with great ease and celerity, but it also makes the book rather scrappy and disconnected. Two faults might be found in the manner of making the extracts,—the first, that they are all put into the present tense; the second, that the prescriptions are printed some in Latin, some in English, and some in a mixture. Now, it is distinctly incongruous to read that Dr So-and-So, who has been dead some years, *considers* that a certain drug is without equal in the treatment of disease, or that he always *uses* a powder, not an ointment, for local applications. As the editors, who must get through a most commendable amount of reading, always paraphrase the extracts, it would be easy enough for them to see to this minor point. There are naturally a good sprinkling of Americanisms throughout the book, many of them put in the mouths of British physicians. Prof. Fraser, for instance, speaks of things as "bothersome" in his otherwise grave contributions. The book is got up in an exceedingly attractive dress, and is beautifully printed throughout. There is a comprehensive index of authors and of the rarer drugs at the end of the volume.

The Diseases of the Stomach. By Dr C. A. EWALD, Extraordinary Professor of Medicine at the University of Berlin. Authorized Translation from the Second German Edition, with Special Additions by the Author. By MORRIS MANGES, A.M., M.D., Attending Physician to Out-Door Department, Mount Sinai Hospital, New York. Edinburgh and London: Young J. Pentland: 1892.

DR EWALD'S lectures on the diseases of the stomach have already been translated into English, French, Russian, Italian, and Spanish. We have so lately noticed Dr Saundby's excellent translation that we must confine our remarks chiefly to the merits of this, the latest, publication. Dr Manges has translated only the second part of the original lectures, referring intending readers to the Sydenham Society's translation of Part I.; and he has had the cordial co-operation of the author, who, indeed, has inserted some new matter which is shortly to appear in a new German edition. Printed in a large, handsome volume, with illustrations which, we are bound to say, excel those of the Sydenham Society's edition both in artistic merit and in clearness, the book is one which any one should be proud to possess. The translation, a trifle obscure in parts, has not quite the same flow which the original possesses so wonderfully, and which Dr Saundby has caught so well. Still it is eminently readable. The translator has enhanced the value of his work by increasing the references, adding some new plates, and by giving fuller details in one or two places. It may be permitted to us to wonder how a plate, like the one printed on page 174, could possibly be copied from the same original as the corresponding figure in the Sydenham Society's edition.

Charts for Recording the Examination of the Urine. London: H. K. Lewis.

THE charts, which have been sent us by the enterprising publisher above named, are printed on a sheet of foolscap, taking up the whole page. This page is intended to be filled in with the analysis of one day's urine, and evidently is to serve more for a single examination than a series. Spaces for all the normal constituents, with the normal amount of each in brackets, are provided, with similar spaces for the abnormal contents and sediment, even a blank circle is added for a representation of the microscopic appearances. It strikes us that a more useful chart might be devised in which the results of examination on different days could be inserted, with a great saving of space. Another thing is that although there is a special notice to the effect that only samples from the mixed urine of 24 hours should be taken for testing purposes, no space is allotted to a note of the diet of the patient at the time, a matter quite as important.

On Congenital Obliteration of the Bile-ducts. By JOHN THOMSON, M.D., F.R.C.P.E., Lecturer on Diseases of Children, Edinburgh School of Medicine, etc. Edinburgh: Oliver & Boyd: 1892.

THIS essay has so lately appeared in our pages that it is needless to say much about it at this time. It is exceedingly neatly got up, and the three plates in the text are all that could be desired. With the full literature of the subject carefully worked out, and forming, as it does, the just published description or *résumé* of this class of cases, it deserves to be widely read. The problems, too, presented by these examples of "Nature's experimental pathology," so clearly put by the author, merit thorough investigation.

Notes on cases of obliteration of the small intestines and of partial obliteration of the gall-bladder in a new-born infant are included in the volume. Dr Thomson's ideas on the origin of the meconium are amusing.

Coca and Cocaine; their History, Medical and Economic Uses and Medicinal Preparations. By WILLIAM MARTINDALE, F.C.S., etc., etc. Second Edition. London: H. K. Lewis: 1892.

WE are glad to see that this little book, so full of valuable and most interesting information, has reached a *second* edition. The volume will be read by all with much profit, and is worthy of the high position its author holds in the profession.

From "Oesypum" to "Lanoline," with a Consideration of the Use of the Latter in Medicine and in Cosmetics, etc. London: Burroughs, Wellcome, & Co.: 1892.

THIS is a small work of 48 pages, and contains much that is interesting historically, and also much that is valuable therapeutically. "Oesypum" was the name given by Dioscorides and other ancient writers to the fat of sheep's wool, which in the days of the early Greek physicians was used medicinally. It fell into disuse, but very recently a purified form of the fat of sheep's wool has become officinal under the name of "Adeps Lanæ" or lanoline. We commend this book to the notice of our readers.

A Short Manual of Inorganic Chemistry. By A. DUPRÉ, Ph.D., F.R.S., F.C.S., etc., and H. WILSON HAKE, Ph.D., F.C.S., F.I.C., etc. Second Edition, Revised. London: Charles Griffin & Co.: 1892.

WE are glad to see that this excellent manual has reached a second edition. In a previous number we had occasion to commend to our readers the *first* edition—we can only repeat what we said on that occasion. The Manual is excellently arranged and well adapted for students of chemistry. The authors give succinctly, yet fully, the leading facts in Inorganic Chemistry. Among the many text-books on chemistry it is sure to hold a foremost place.

Catechism Series. Chemistry, Part I., Inorganic. Edinburgh: E. & S. Livingstone: 1892.

THIS work has neither preface nor author's name attached. It is difficult to comprehend what may be the object of the author in its production. These series of catechisms can never be of much service to students, but will most likely prove hurtful to the student of medicine by making him trust to a source of information for examinations which can never teach him the subject.

Anæsthetics, their Uses and Administration. By DUDLEY WILMOT BUXTON. Second Edition. London: H. K. Lewis: 1892.

THE subject of anæsthesia at present occupies very seriously the attention of the medical profession, as evidenced by the numerous articles which appear almost weekly in the medical journals both at home and abroad. It may be admitted that in England and America ether is the favourite anæsthetic, while the recent investigations at Hyderabad, initiated by Surgeon-major Lawrie, have done much to strengthen, if that were needed, the view of the great majority of Scottish surgeons that chloroform is not only the most convenient anæsthetic, but also, when skilfully exhibited, a safe drug for the production of anæsthesia.

In London hospitals specialists for the administration of anæsthetics are employed, and they unanimously advocate the use of ether as the best anæsthetic for ordinary use. The author of the above work is no exception to this rule. He states the case for and against the various drugs as fairly as an avowed supporter of ether can, and expresses the opinion that "ether for general purposes is the best and safest anæsthetic," at the same time admitting that "there are, however, cases in which ether should not be used." The descriptions given as guides for the administration of the three chief anæsthetics—ether, chloroform, and nitrous oxide—are excellent. Indeed, the whole subject is succinctly and lucidly considered, and in our opinion Mr Buxton is to be congratulated on placing before the profession a most valuable work relating to this important subject. We have every confidence in recommending it to both students and practitioners.

Cancer of the Mouth, Tongue, and Œsophagus; their Pathology, Symptoms, Diagnosis, and Treatment. By FREDERIC BOWREMAN JESSETT, F.R.C.S. Eng., Surgeon to the Cancer Hospital, Brompton. With numerous Illustrations. London: Baillière, Tindall, & Cox: 1892.

MR JESSETT makes excellent use of his great opportunities as surgeon to the Cancer Hospital, and has republished this treatise, which originally formed part of a work published in 1886 on Cancer of the Mouth, Tongue, and Alimentary Tract. We lately reviewed in these columns the work on Cancer of the Stomach and Intestinal Canal. The present work gives a fairly readable, but not very well-arranged account of the symptoms, pathology, and treatment of the malignant diseases of the mouth, tongue, and œsophagus. The author has studied museum specimens with care, and has had considerable experience of his own, while he also lays under contribution the experience of other surgeons, both Continental and British. Some of the names are printed with curious incorrectness. Kocker for Kocher; Khrone and Seissen we suppose mean Krohne and Seseman; and Schäpher we have failed to identify. Syme has been dead for more than twenty years, yet is described as still recommending an operation, p. 18.

The value of the work would have been greater had the table of contents been more full, and the index better arranged and more precise.

A Primer of the Art of Massage (for learners). By Dr STRETCH DOWSE. Bristol: John Wright & Co.: 1892.

THIS little volume may be useful either as a first step to learning the art of massage, which is much more fully taught in Dr Dowse's published lectures, or it may serve as an easily referred to reminder for those nurses who have already learned the practice of their art. A "good rubber" must have a little knowledge of physiology, and a certain acquaintance with the lie of the larger superficial muscles. To know the names of the muscles only fosters vain conceit, and beware of the masseur, or still more of the masseuse, who can "transmit her own magnetism," and "gives out her own health" to her favoured patient. Strength, patience, fairly soft hands, and a moderately hard heart, tempered by obedience to the doctors, are qualities which, with practice and after some elementary instruction, make good rubbers.

On an Epidemic Skin Disease, resembling Eczema and Pityriasis Rubra in some respects, which occurred chiefly in the Western Districts of London during the Summer and Autumn of 1891. By THOMAS D. SAVILL, M.D. Lond., D.P.H. Camb., Medical Superintendent of the Paddington Infirmary, London, etc. London: H. K. Lewis: 1892.

THE disease so admirably described and so fully illustrated by Dr Savill from the numerous instances which came under his personal observation, coupled with the study of a number of others seen elsewhere, cannot be regarded as an entirely new one, since in 1888 Dr Elkins had a similar experience in the Greenock Parochial Asylum. If in the course of his investigation into the nature and causation of a most mysterious malady Dr Savill has not entirely succeeded in clearing up all the many obscure points which have cropped up in connexion with it, he has at least put on record in a thoroughly scientific manner much which will prove of the utmost value in the event of any future outbreak of a like kind. The disease is defined as "a contagious malady in which the main lesion is a dermatitis, sometimes attended by serous exudation, always resulting in desquamation of the cuticle, usually accompanied by a certain amount of constitutional disturbance, and running a more or less definite course of seven or eight weeks." One curious item in its history was that the temperature was generally normal or subnormal notwithstanding the large extent of cutaneous surface involved. This certainly allies it more closely with eczema than with erysipelas, and it may possibly prove to have a relationship to diphtheria, for in fifty per cent. of the cases there was albuminuria. An aërobic diplococcus having special characters was constantly found in the serum and exudation by Dr Savill, and in the blood, skin, and other tissues by Dr Russell, but its full pathogenic significance has not been yet entirely established. At the same time Dr Savill is of opinion that the disease is due to a special microbe, which gains access to the blood by means of the skin, in the cases in which there is a preliminary stage with asymmetrical eruption, while if the microbe entered the blood by some other channel, as the alimentary canal, the rash was symmetrical from the outset. It only remains to add that the illustrations, whether coloured or in phototype, are such as to render the recognition an easy matter. We would counsel all medical officers of health and every parochial medical officer in charge of a workhouse to purchase a copy, but it will be found both interesting and valuable to every well-informed practitioner.

Hoblyn's Dictionary of Medical Terms. Twelfth Edition. Revised throughout, with numerous Additions, by JOHN A. P. PRICE, B.A., M.D. Oxon. London: Whittaker & Co.: 1892.

HOBLYN'S Dictionary has so long been a standard work that one is curious to know how far a revision by another hand is likely to prove successful. Dr Price has evidently bestowed much care on this revised edition; and if he has failed to bring it up to date in every branch of medical science, he can scarcely be blamed for falling short of what is perhaps too much for any one man to accomplish. Some new features of the book are admirable, but the work as a whole is somewhat unequal and inconsistent. In many instances the exact application of a term is not made clear, and often the term is not properly differentiated from terms to which it is related. No student could possibly from this Dictionary find out the relation of *Planula* to *Gastrula;* and the idea of *Abdominal pores* gathered from the instances named of their occurrence would be quite erroneous. In the definition of *Placenta prævia* one would naturally expect mention to be made of the *lower uterine segment;* yet one finds the following definition: "*Placenta prævia, a term denoting attachment of the placenta over the mouth, instead of to the fundus of the uterus,*" and no mention of the lower uterine segment anywhere in the book. The action of the sterno-cleido-mastoid muscle is wrongly stated; and a sty is said to be an inflammation of a *meibomian gland. Friction-sound* is limited to the abdomen. *Deciduous,* as applied to the calyx, is said to be synonymous with *caducous,* the very term from which it has to be differentiated. Words like *præ-coracoid* and *ligament* (of abdominal organs), which always prove a stumbling-block to students, are omitted. *Chorion,* with all its difficulties and modifications, is disposed of in four lines, while seventy lines are devoted to what is very suggestive of a patent medicine advertisement of *Halvion.* In a book which makes a specialty of the names of physicians, surgeons, and anatomists, the omission of the *Argyll Robertson symptom* is a peculiar oversight. *O'Dwyer's method* is defined, but the term *Intubation* is not mentioned. One has to stumble accidentally upon *Myotatic irritability* in order to find the term *Knee-jerk.* The definitions of *Incisors, Canines, Præmolars,* and *Molars,* are useless for scientific purposes. These examples, culled at random, show that the revised edition of Hoblyn's Dictionary needs more revision still if it is to be brought up to date as a trustworthy exposition of the *exact application of terms* in medicine.

Mona Maclean, Medical Student. By GRAHAM TRAVERS. Messrs Blackwood: Edinburgh: 1892.

THE grave and reverend seniors who do the reviewing for this Journal have not often the opportunity of exercising their wits on a three volume novel, so it was with feelings of quite unwonted diffidence that the task was essayed. The first difficulty was the reading of it: Was it possible to keep awake during the actual perusal? and the next was to find the boldness to criticise a work so obviously by one of the nobler sex, and one in which the heroine is the latest fine flower of civilisation and progress. Fears have been disappointed, and the three volumes were read from cover to cover without turning a hair. The heroine is charming, and the delicate topics involved in the dissecting-room episodes, and the examination failures, are told with a light hand. The book is eminently readable,—in fact almost deserves the epithet which our old aunt kept for the sermons of her favourite preacher "divertin'." The characters are life-like, and the heroine, though she was plucked twice in her "intermediate," in the end gets the physiology medal, and lets herself be made love to in a fairly successful manner. Not, perhaps, in the fearless old fashion of earlier days, but still not badly, considering her knowledge of cardiac ganglia and similar aids to disillusion.

The authoress has done good work in this which is obviously her first book, and will do better yet. The hero, or shall we call him the martyr, who marries the doctor is rather a poor creature, and we doubt the success of his attempt to hand over his first patient to his wife and partner.

Laird Nicholl's Kitchen, and other Scottish Stories. By JOSEPH WRIGHT. Sixth Edition. Glasgow: Joseph Wright.

THE ingenious advertiser and inventor of the Drooko umbrella writes prose without knowing it, and occasionally drops into poetry. He has drawn in his day letters of thanks from many individuals more or less distinguished,—princes and princesses, actresses, statesmen, Mary Anderson and Mr Gladstone, Lord Rosebery and Professor Blackie. The funniest example of unfulfilled prophecy is found in a letter from Mr Chamberlain, in which he says, "Even your skill may fail to make an umbrella wide enough to shelter Lord Salisbury and myself." This must have been written before 1885. The stories and poems, while not so amusing as the Drooko letters, are pleasantly written, with an excellent tone of old world simplicity, love of nature, and love of country. The young person may read it from cover to cover and never need to raise a blush.

The Prescriber's Guide to the Harrogate Mineral Waters. By J. H. JOHNSTON-LAVIS, M.D. London: H. Renshaw: 1892.

THIS brochure is intended to place before the busy practitioner the general principles and salient facts to be considered in directing his patients to Harrogate Spa. A spare hour is sufficient to peruse it, and to glean from it what is required.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXII.—MEETING I.

Wednesday, 2nd November 1892.—Mr JOSEPH BELL, *President, in the Chair.*

I. EXHIBITION OF PATIENTS.

1. *Dr Norman Walker* showed a case of ACQUIRED SYPHILIS IN A CHILD.

2. *Mr A. G. Miller* showed a GIRL, æt. 18, household servant, at present in a situation, whose knee-joint he had excised in May 1890 (case No. 24 of his series). Patient walked with hardly any limp, and was quite able for her work. The limb was rigid and quite straight.

II. ORIGINAL COMMUNICATIONS.

1. *Dr William Russell* read his paper on SOME PRACTICAL RESULTS OF THE INVESTIGATION OF CHOLERA IN GERMANY, which appears at p. 521 of this Journal.

The President pointed out that a most interesting and fruitful discussion of this interesting paper might be expected. The various points of etiology, bacteriology, prophylaxis, and treatment should all be discussed, and there were many men present who had a right to speak on each.

Dr Troup said he had seen the great epidemic of 1848-49 in Glasgow. People said cold weather checked the virulence of the disease, but that this was a mistake, for the cholera was worst in the dead of winter during that visitation. It began in November 1848, and continued till spring, and the winter was so severe that the Clyde was frozen over at the Broomielaw. From what he had seen he had come to the belief that, in advanced cases, no medical treatment was of any avail: people got better and people died, and he considered the doctor was not responsible for either result. The mortality then was very much the same as it is now—about one-half of those seized succumbing; intravenous injections seemed to be of some use in the algide condition; patients operated on even with warm water recovered amazingly for a time, but then sank, but some survived. He was also very much struck with the rapidity with which patients who were going to recover passed in three or four days from the gates of death and were able to be on their feet; this only happened when they escaped an after-fever, which was very common, and was then called "consecutive fever," now called "cholera typhoid." In most of the cases there was a diarrhœa called "preliminary," which lasted a few hours or a day, and was painless, and then changed to the rice-water evacuations. Advanced students were employed, in the latter periods of the epidemic, at so many guineas a week, and they made house-to-house visitations in the cholera districts, inquired for diarrhœa, prescribed lead and opium, or kino and katechu with opium, etc., and very speedily the cholera curve steadily fell.

Dr James Carmichael had listened with much interest to Dr Russell's narrative of his visit to Berlin and Hamburg. His feeling on hearing the paper was a desire for more light on several points connected with the pathology and spread of the disease. It seemed to him that the evidence afforded by this epidemic as to the part played by the comma bacillus was quite conclusive as a corroboration of Koch's original work on the subject. As to the habitat of the micro-organism, while it mainly infested the intestinal canal, he should like to know if it had been found in any of the internal organs or the blood, and if any experiments had been made to determine the nature of the poison elaborated through the agency of these micro-organisms. It was only by obtaining a knowledge of the true chemical nature of the poison that we were likely to find an antidote to neutralize its poisonous effects. The relation of cholera nostras to the real disease had always been a subject of interest to him, and he had hoped that Dr Russell would have been able to throw some light on this important point. So far as he could make out from the paper, these cases were not viewed by the Germans as mild or incipient cases of cholera. His personal experience of cholera was practically nil, for he had only seen two cases in Fife during the epidemic in 1865. Both were treated with small doses of calomel and subcutaneous injections of morphia to relieve the painful spasms. The spread of the disease at that time was closely connected with bad drainage and impure water supply.

Dr Semple said that, although he had served seven years in the Bombay Presidency, he had only seen two cases of cholera during that time. When in charge of the Invaliding Depôt of Deolalee, and at a time when the neighbouring villages and along the course of a stream which passed the cantonment were being decimated by cholera, only one case of the disease occurred in camp. It occurred in the person of a vagrant native. He (Dr Semple) had seen him only after collapse had taken place, and the disease speedily proved fatal. The other case occurred when there was no cholera in the neighbourhood, and was that of a European soldier invalided from Upper India. It appeared that the disease was excited by the man's partaking too freely of some indigestible bacon in the canteen. He likewise died. He (Dr Semple) might likewise mention, in connexion with cholera, that he had been told that an aggravated paroxysm of malignant malarial fever might simulate cholera. He had seen an instance of this at

Deolalee in the case of a man invalided from Upper India. While there the man had two attacks, and he attended during the second. The seizure was perfectly indistinguishable from a sharp attack of cholera. In saying this he made of no account the passing of rice-water stools, as he had seen cases of cholera at home in 1854 which proved fatal without the bowels being once moved. This man recovered.

Dr Mackinnon of Damascus congratulated Dr Russell on the practical paper he had read to the Society, and on the good use he had made of his holiday in Germany. He then proceeded to describe some of his own experiences during the cholera epidemic of October and November 1891 in Damascus, and point out the importance of certain facts to which Dr Russell had drawn their attention as bearing upon the introduction of germs, and the means of forming a differential diagnosis of a mild case of true Asiatic cholera and an ordinary case of diarrhœa or cholera nostras. It would be impossible to exaggerate the importance of having a true and reliable knowledge of the existence of Asiatic cholera at the very commencement of an outbreak, as a reliable knowledge of this would enable the sanitary authorities in a great measure to isolate and localize the disease at its very onset and protect their water-supply. The town of Mecca he regarded as a great cholera focus, from which their late Damascus epidemic, as well as many other ones, had radiated. Crowds of pilgrims from India, Asia, and all parts of the Mahommedan world congregated there, numbering according to Burton and Burckhardt from 50,000 to 70,000. With these the germs of disease were doubtless brought, and soon found a suitable nidus in the vast crowds amassed around the Holy Shrine without any regard to hygienic principles. The waters of the holy well Zem-zem, which are regarded as a panacea for all ills, are drunk and used for washing purposes. Winding sheets for the dead (for many pilgrims buy at Mecca the shrouds in which they wish to be buried), and other linen washed in the well hang around it, and from it each pilgrim carries away a bottle of its waters. Could anything be more calculated to spread the disease all over the world? According to report, thousands perished from cholera during the pilgrimage of the summer of 1891. Shortly after the return of the Damascus Hadj the epidemic broke out in our city. The clothing of those who died there was the probable vehicle, and Dr Russell has demonstrated conclusively that soiled linen can and does convey the comma bacillus. Among the many things he observed during the epidemic he would like to mention two—(1) that cold, although it retarded and mitigated the disease, did not destroy it, and (2) that after *slight* falls of rain, when the atmosphere became damp, there was always an increase in the number of cases. As regards *treatment*, he laid stress on the prophylactic measures which ought to be adopted both by the individual and the community. (1.) As regards the community, he did not believe in land cordons or water quarantines as practicable or efficacious,—they were useless, tyrannical measures, opposed to all commercial enterprise and personal liberty. Medical supervision and the isolation of suspected cases were more in accordance with the age we live in and the knowledge we possess. Add to this sanitary reform—the purity and care of our great water supplies, and suitable accommodation for cholera patients in case of an epidemic, and he had said all he would say on this point. (2.) As regards the individual, he believed in maintaining the best possible health by avoiding fatigue, worry, anxiety, and chills; by correcting any gastro-intestinal disturbances; by regulating one's habits, taking proper exercise, drinking only boiled water and eating only freshly-cooked food. All food, fruits, and water should be first sterilized by subjecting them to 212° F. Speaking of *medical treatment*, he said he was a believer in the astringent or opium treatment, and advocated the hypodermic injections of morphia, morphia and atropine, etc., in preference to drugs by the mouth, as in the latter case one could not rely on the dose owing to the violent vomiting, nor its absorption if retained, owing to the condition of the alimentary canal and blood. To get good results, however, the case must be caught in the first stage of the disease. He had no experience of saline injections, but thought no doubt they would be most beneficial as supplying to the blood those constituents which had been poured out during the attack. He thanked Dr Russell for calling their attention to this fact also.

Dr Norman Walker said that probably in regard to the relation of the bacillus to the disease medical men might be divided into those who knew nothing about it and did not believe in it, and those who had some knowledge of it and did. He asked Dr Russell whether during this recent epidemic the bacillus had been discovered in the blood, or if it still was only found in the intestines, as Koch stated? With reference to the culture method in diagnosing the disease, he would like to say a word for the method of high culture (*Hohe cultur*) as being simpler for those who had not the whole apparatus of a bacteriological laboratory at hand. With this method he had obtained in Professor Hueppe's Laboratory a pure cultivation from a very contaminated source in less than thirty-six hours. He advised Dr Mackinnon to advocate the introduction of a steam sterilizer at Zem-zem, in which the water which the pilgrims took away might be sterilized, for it was well known the organism could live and multiply in water.

Dr Boyd asked Dr Russell if he had made any observations as to the period at which comma bacilli disappeared from the stools. A German observer, working in Hamburg, had noted active bacilli in the stools of patients who were convalescent and had been discharged from hospital. So far the observation did not seem to have been confirmed; but if true, it would have considerable practical value in relation to the propagation of the disease.

Dr Gillespie had seen several cases of cholera in Paris during the month of July. Although no comma bacilli were detected in the stools of the patients affected, yet a regular succession of cases occurred in the northern suburbs of the city, where the Seine water was at the time used for drinking purposes. This fact was of interest if only in reference to the possibility of an outbreak of cholera nostras in a severe and epidemic form. The treatment adopted, he said, was the administration of calomel and powdered opium by the mouth. The comma bacillus, he believed, was discovered in the discharges of patients in Paris during the later stages of the epidemic. If the occurrence of cholera nostras before that of Asiatic cholera was usual, the fact would be of use in the taking of precautions.

Prof. Struthers said that he recollected very well the cholera epidemic in Edinburgh in, he thought, 1847-48. The late Dr William Robertson was physician to the Cholera Hospital in Surgeon Square. He remembered going there on one occasion to assist Dr Robertson in getting the injection-pipe introduced into a vein at the bend of the arm, for the purpose, he supposed, of trying saline injection. The report on that epidemic should be worth looking into now.

Dr Russell, in reply to questions asked by various speakers, said that the organism did not occur in the blood or organs, and was confined to the intestine. As to the cause of cholera nostras, he could only say that Dr Guttmann had found a spiral or comma-shaped bacillus in some cases, and which behaved differently to Koch's comma bacillus, but until the organism was investigated Dr Guttman formed no opinion on the subject. As to the occurrence of cholera nostras during an epidemic of Asiatic cholera, although they knew nothing definitely, still he thought it was not going too far to assume that the climatic and meteorological conditions which favoured the multiplication of the Asiatic comma bacillus might equally favour the multiplication of other organisms acting specially upon the intestinal tract. With reference to the method of examining the fæces, he did not think that any method could be more simple and satisfactory than that of plate culture in Petri's dishes; he had used these for the last 18 months, and in Koch's they used nothing else. While it was a fact that in some cases a cover-glass preparation might be sufficient, it was not always so, and culture was essential. Many experiments had been made with the bacillus in culture media in test-tubes, and many substances were known which prevented its multiplication, but unfortunately the ileum could not be treated as if it were a test-tube; if it could, the therapeutics of cholera would be solved. No change had taken place in the views as to the action of the healthy gastric juice upon the organism. He quite agreed with all that had been said as to the importance of water as a vehicle for spreading the disease.

2. *Mr A. G. Miller's* paper on ARTHRECTOMY OF THE KNEE-JOINT, which appears at p. 504 of this Journal, was not read on account of the lateness of the hour. Mr Miller merely made a short statement as to the main points and quoted his statistics.

The President congratulated Mr Miller on the excellent results which he had described, and contrasted them with the earlier statistics before the methods of operating and of dressing were elaborated and perfected.

Mr Stiles thought Mr Miller's operation a very complete one. In a large proportion of the limbs which he (Mr Stiles) had examined after amputation for tubercular disease of the knee, he had found that the popliteal lymphatic glands, although seldom larger than a pea, were nevertheless tubercular, and he would like to ask Mr Miller if he had ever observed tubercular abscess in the popliteal space as a sequel; or whether, in the cases in which the disease had broken out again, he could attribute the outbreak to infection from tubercular popliteal glands?

Prof. Struthers congratulated Mr Miller on his success in this operation. When he was house-surgeon to Mr Miller's father, the late Prof. Miller, excision of the knee-joint was being tried. The results were not very encouraging; there was a great deal of exhausting suppuration, and the operation was regarded as one of doubtful expediency by some of the surgeons of the hospital. Mr Miller's success in the operation is surprising and admirable.

Mr Miller, in replying, thanked the President and the Society for permitting him to make his statement at that late hour, and stated that his paper would shortly appear in the pages of the *Edinburgh Medical Journal*, where the members of the Society would find his views on the subject of arthrectomy of the knee-joint stated, if they cared to read them. In answer to Mr Stiles, he said that the cases Mr Stiles had examined must presumably have been worse and more advanced than those quoted in the paper, seeing the patients were subjected to amputation. He had not specially noticed suppuration in the popliteal glands. He felt much honoured by the kind and laudatory manner in which Prof. Struthers had referred to his operations. The patient whom he had shown to the Society that evening fairly represented the usual result of his excision operation.

III. ELECTION OF ORDINARY MEMBERS.

Dr Gordon Sanders, 23 George Square; Dr W. G. Aitchison Robertson, 26 Minto Street; Dr David Greig, 25 Tay Street, Dundee; Dr John Stevens, 3 Shandon Crescent; and Mr W. Ramsay Smith, 17 Inverleith Gardens, were elected Ordinary Members of the Society.

IV. Election of Office-Bearers.

The following gentlemen were elected Office-Bearers for the ensuing session :—*President*, Mr Joseph Bell; *Vice-Presidents*, Dr P. H. Maclaren, Dr Claud Muirhead, Dr Blair Cunynghame; *Councillors*, Professor Simpson, Dr J. Batty Tuke, Dr Semple, Mr George A. Berry, Dr Troup, Mr Caird, Dr Thom, Dr R. A. Lundie; *Treasurer*, Dr Mackenzie Johnston, 44 Charlotte Square; *Secretaries*, Dr Wm. Russell, 46 Albany Street, and Mr Hodsdon, 52 Melville Street; *Editor of Transactions*, Dr William Craig, 71 Bruntsfield Place.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LIV.—MEETING I.

Wednesday, 9*th November* 1892.—Prof. A. R. Simpson, *President, in the Chair.*

I. *Dr J. W. Ballantyne* exhibited an INFANT with a BIFID HAND. A description will appear in a future number of this Journal.

II. *Prof. A. R. Simpson* read his PRESIDENTIAL ADDRESS, which will appear in a future number of this Journal.

Dr Berry Hart had much pleasure in moving a hearty vote of thanks to their President for his interesting address. Dr Keiller's death was a great loss to the Society, as his geniality and shrewdness made his remarks at their meetings always interesting and valuable. His courtesy and kindness to younger Fellows was specially marked, and quite in accordance with the best traditions of their Society. Professor Credé's death was a very great loss to obstetric science, and few men could expect to do as much for its practical advance as Credé had done for the third stage of labour and the prevention of congenital blindness.

III. *Dr J. W. Ballantyne* communicated for *Dr W. Nagel* of Berlin a paper on FURTHER CONTRIBUTIONS TO THE STUDY OF VERSION ON ONE LEG, which will appear in a future number of this Journal.

The President observed that Dr Nagel had laid the Society under a deep obligation by the paper which had just been read. It was of great value both in its scientific and practical aspects, and was an excellent example of the instructive kind of work we were accustomed to look for from our German colleagues. He (the President) was glad to have his own impressions confirmed that turning can be accomplished with equal facility whichever leg was laid hold of. It was extremely interesting to have had the exposition of the mode of delivery of the fœtus in breech presentations with the posterior limb prolapsed, and the result of Dr Nagel's contribution would be to render all our teaching and our practice more definite. It gave promise of a successful session to have it initiated with such an admirable essay..

Dr Berry Hart had listened with great pleasure to Dr Nagel's paper, and would study it carefully.

Dr W. Nagel said that he felt very grateful to the President and the Society for the kind hearing given to his paper; he also thanked the Secretary, Dr Ballantyne, very sincerely for communicating his paper. He wished to emphasize that it was the manner of rotation of the fœtus with the back gliding past the promontory, which he had observed constantly in his cases of incomplete foot-presentation with prolapsed posterior leg, and his conclusions from this fact to the study of version on one leg, which he considered as the chief points in his paper. To Dr James Ritchie Dr Nagel replied that he often had to deal with narrow pelves in his above-mentioned cases of transverse presentations, and that he was sure that the narrow pelvis in many of these cases was the cause of the transverse presentation.

IV. *Drs Berry Hart* and *Gulland* gave their Demonstration of Specimens bearing upon PLACENTA PRÆVIA.

The President said the masterly demonstration which they had enjoyed embodied the results of some of those valuable series of observations which Dr Hart had accustomed them to expect at his hands. The contribution of to-night was important in that it would help to make more clear the relations of the placenta in those dangerous cases where it must become more or less detached before the birth of the fœtus can occur.

Dr Gulland, in regard to the phagocytic action of the cells, referred to a previous paper on the placenta (*Edin. Obstet. Soc. Trans.*, vol. xvii., p. 195).

Dr Berry Hart thought the cessation of hæmorrhage after rupture of the membranes in some cases was due to the retracting part of the uterus compressing the branch of the uterine artery to the lower uterine segment, and to the pressure exercised by the fœtus.

ROYAL MEDICAL SOCIETY.

Oct. 28.—The Royal Medical Society held the first meeting of its 156th session this evening. The Inaugural Address was delivered by T. Lauder Brunton, M.D. The handsome large Hall belonging to the Society was crowded for some time before the meeting, the audience including several of the Professors and Extramural Teachers, while letters of apology were received from many who were unable to attend. Dr Brunton, who was introduced by Dr Miles, the senior President of the Society, was received with great enthusiasm. He expressed his pleasure in addressing a body of which he had such pleasant recollections, and stated that he regarded the Royal Medical Society as a valuable educational institute, to which he owed his first instruction in speaking, writing, and scientific criticism. The scepticism fostered by free discussion was a most valuable part of medical education, and a powerful antidote to the system of cramming and the accumulation of dry facts, which he feared was encouraged by the present system of examination. After some personal reminiscences of the Society, he proceeded to speak of the simplification of medical studies, illustrating the grouping of the motor centres in the brain, with reference to the temptation of our first parents in the Garden of Eden, in a very clever and certainly original manner. He then went on to speak of the relations of Pathology to Therapeutics, and drew attention to the similarity of action existing between the poisonous products of the bacteria of certain infective diseases and chemical poisons derived from other sources. He expressed a hope that when the former were isolated and studied more completely, antidotes might be discovered for them, as had been done for certain of the latter class, and that the power to relieve disease would thereby be increased.

At the conclusion of the address a hearty vote of thanks was accorded to Dr Brunton on the motion of Dr Miles, seconded by Professor Fraser.

Nov. 4.—First Ordinary Meeting. Dr Crerar in the chair.

Dr Carmichael delivered his Presidential Address, taking for his subject the life of Cullen. Allusion was made to his influence on medical education, he being the first in Edinburgh University to lecture in English, and also to his connexion with the Society, of which he was one of the founders.

Dr Bremner showed a specimen of Advanced Atheroma of the Aorta. Some discussion followed on the relations of alcoholism to sudden death, due to this and similar conditions.

Dr John Wallace read notes and showed specimens from Two Cases of Appendicitis, in which there were well-marked concretions present. He then reviewed the present state of opinion on the subject, and suggested several points for discussion. A most interesting debate followed, in which Drs Adamson, Giles, Murray Leslie, and Orr, and Messrs Dunn, Farthing, Hearder, Hutchison, Monserrat, Stanwell, and D. Stuart took part. Numerous cases were described, and many interesting questions as to the pathology and treatment of the affection were discussed.

Mr Hutchison described a case of Ulceration and Perforation of the Soft Palate in a girl, 12 years of age. The case was one of unusual interest, being apparently syphilitic; but there was no family history of syphilis, nor sign of that disease in the patient. An animated discussion followed, in which the possibilities of retarded syphilis were considered. Drs Giles and Wallace, Messrs Campbell Smith, Pringle, and others expressed opinions.

Nov. 11.—Dr Rainy in the chair.

Dr Crerar delivered his Presidential Address. He took for his subject the Value of a Medical Education as a Training for Life. The address was bright, and gracefully interspersed by many happy quotations from Carlyle, Dickens, and others. He sought to prove that the study of Medicine prepares a man better than either a clerical or legal training to exercise a powerful influence for good on those with whom he comes in contact in his professional capacity.

Dr Turner brought before the meeting a patient, 12 years of age, with Extensive Baldness, which could not be accounted for by any previous history. It had commenced in patches, and then spread, after a short period during which the hair grew again, to the whole scalp. The eyebrows and eyelashes were unaffected. Some interesting discussion followed, bearing chiefly upon the causes of alopecia areata. Opinions were divided between the nervous and parasitic cause. Dr Adamson and Mr F. P. Hearder referred to the prevalence of baldness among asylum patients, and to its transitory nature in the insane.

Dr Murray Leslie gave a lengthy communication on some cases of Exophthalmic Goître, which he illustrated by microscopic specimens and photographs, kindly lent by Dr Gibson and Dr Muir. He was strongly of opinion that the thyroid itself is the cause of this disease, which opinion he endeavoured to prove by pointing out the changes which had occurred in the gland substance. In the chief case which he mentioned the most striking points were its extrême rapidity, the whole duration being only nine months, and the great enlargement of the heart. Dr Crerar and Dr Wallace quoted cases in which removal of portions of the thyroid was followed by improvement, though in one of them there was a recurrence of the symptoms. Drs Adamson and Miles, Messrs Craig, Dunn, and Bell discussed the treatment of one of the cases mentioned.

Dr Miles read notes and showed specimens of a typical case of Acute Pneumonia in a cat, which he had diagnosed as such during life, and treated in the usual manner, giving stimulants of strophanthus and brandy. Mr Hutchison referred to the difficulty of auscultating animals. Mr Alexander said he had diagnosed a systolic murmur in a dog. Others also spoke.

Part Fourth.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

The Therapeutic Value of Dermatol.—Professor Colosanti, who has been discussing the various researches and observations made with the new dressing powder Dermatol (a sub-gallate of bismuth), authorizes the presumption that it might in many cases take the place of iodoform, over which it appears to possess the unquestionable advantage of not giving rise to untoward symptoms as the result of absorption. It is, moreover, non-odorous and stable,—exposure to air, light, or a rise of temperature not entailing the slightest deterioration. It may be sterilized by a temperature of 100° C. without undergoing decomposition. Applied to wounds, this new dressing powder is perfectly unirritating, and it possesses markedly drying and astringent properties which render it peculiarly suitable as a dressing for eczema and analogous cutaneous affections. Its innocuousness, the well-known antiseptic astringent and hæmostatic properties of the gallic element, and the specific action of the base, suggested the propriety of its administration in a number of internal disorders. The result of prolonged and careful observation has been to confirm the *à priori* assumption of its being one of the best and most reliable antidiarrhœic remedies at our disposal. We have given it in doses of from two to six grammes (ʒss. to ʒjss.) daily, in powders containing from five to ten grains of the remedy, either alone or associated with one to two grains of powdered opium when the diarrhœa was accompanied by painful manifestations. It may also be given in the form of an emulsion,—that is to say, suspended in mucilage to which a few drops of laudanum are added. We have thought it desirable to append a few brief notes of the cases in which its administration proved markedly beneficial.

In the Colliquative Diarrhœa of Phthisis.—In all the patients belonging to this category to whom dermatol was given, pulmonary tuberculosis with more or less advanced cavity formation was present, these appearing to afford the most favourable opportunity for observing the effects of the remedy. The number of stools varied from four to six, occasionally rising to fifteen daily. Altogether about 100 patients with pulmonary cavities were treated in this way, and a marked improvement invariably took place within the first twenty-four hours, and in no cases were any untoward effects produced. When the number of stools did not exceed six daily; relief was usually obtained after the first or second dose. The effects were less promptly obtained when the stools were more frequent, it being sometimes necessary to administer the drug more frequently in order to obtain the object in view. The highest dose given in any one case was 6 grammes in the twenty-four hours, with 1 to 2 grains of powdered opium. Even then, however, no toxic symptoms were produced, thus confirming the assertion of Hertz and Liebrecht of the absolute innocuousness of the drug. The urine of these patients was invariably examined, but never showed any notable departure from the normal, no gallate or other derivative having ever been found therein, nor was the bismuth base thrown down, thus testifying to the stability of the new compound. The stools, under the exhibition of dermatol, became dark-brown in colour, probably from the formation of sulphide of bismuth.

In the Diarrhœa of Typhoid.—The next step was to test the effects of dermatol in the diarrhœa of typhoid fever, and the results fully came up to our expectations, both during the acute disease and as against the diarrhœa of convalescence.

In the Diarrhœa of Acute Enterocolitis.—Dermatol was given in ten cases of dysenteric enterocolitis which had resisted all previous treatment. In every case the benefit was immediate and permanent.

In the Diarrhœa of Malaria (*Dysentery*).—In six cases of malarial disease associated with intestinal catarrh or dysenteric enterocolitis, dermatol was employed with prompt and eminently satisfactory results.

In the Diarrhœa of Convalescence from Acute Febrile Disease.—Without going into details, we may mention one typical case in the person of an individual who, on the twelfth day of an attack of croupous pneumonia, was seized with violent diarrhœa. He was ordered 30 grains of dermatol in divided doses, to which 3 minims of liquid extract of opium were added. The number of motions at once fell to three daily, and on increasing the dose to 45 grains daily, it ceased altogether. He remained under treatment a long time, in consequence of severe malarial infection, but no recurrence of the diarrhœa took place. On the strength of the foregoing observations we feel justified in ranking dermatol among the most efficacious and the least harmful of anti-diarrhœic remedies, and we look forward to its general use in the hospitals of Rome.—*Medical Press and Circular*, 12th October 1892.

THE TREATMENT OF ACUTE AND CHRONIC CATARRH OF THE BLADDER WITH SALOL.—Dr B. Arnold (*Therapeutische Monatshefte*, May 1892), in commending anew the use of salol for catarrh of the bladder, says he did not find an increase of irritation in his patients, even when 30 grains were given every three hours; on the contrary, fever and strangury diminished. His experience seems to show that,—1. Salol makes alkaline urine acid. 2. It removes the foul odour. 3. The cloudy urine clears up, the purulent, slimy sediment diminishes steadily, grows lighter, flaky, and usually disappears altogether. 4. As a rule, the quantity of urine is lessened. 5. The remedy is borne very well, and for a long time by the stomach. This excellent quality of salol seems to have been overlooked. In this respect it surpasses all other remedies recommended for cystitis. It may be because the salol is absolutely insoluble in the gastric juice, and only forms itself into salicylic acid and carbolic acid in the intestine upon the entrance of the pancreatic juice. 6. It is a good assistant in washing the bladder, especially when only a slightly antiseptic solution can be borne. Of course it is understood that in using salol the general rules for the treatment of cystitis must not be neglected. Dr Arnold does not consider salol a panacea for acute and chronic catarrh of the bladder, but such a good remedy that it can compete with the best ones employed.—*Therapeutic Gazette*, October 1892.

VACCINIUM VITIS IDÆA (COWBERRY) AS AN ANTIRHEUMATIC.—The berry of the *Vaccinium vitis idæa* has long been employed in Russia, where it is known as the *brousnika*, as a condiment and in domestic practice as an antirheumatic. From the observations of Hermann and Smirnow (*La Semaine Médicale, Les Nouveaux Remèdes*, June 8, 1892) it would appear to possess distinct advantages as an efficient remedy in the treatment of rheumatism. Herrmann employed a decoction in a case of articular rheumatism in an old man, which had resisted all other modes of treatment, and in two months the patient was cured. Smirnow used it in nine cases—three chronic and six acute—all of which had been treated by the salicylates, iodides, baths, etc., without success. He used a decoction of 30 to 60 grammes of the whole plant and root in 180 cubic centimetres of water, to be taken in the twenty-four hours, with seven cures and two failures. The urine was slightly increased in all the cases. The writer advises that the treatment be continued after apparent cure, in order that relapses be prevented. Sedative local applications should be used at the same time.—*Therapeutic Gazette*, October 1892.

THE TREATMENT OF TYPHOID FEVER BY CHLOROFORM.—Werner recommends the employment of chloroform in the treatment of typhoid fever, because he has obtained good results in no less than one hundred and seventy cases. During the period of ascendency he administered chloroform in a one per cent. solution, using two dessertspoonfuls every one or two hours, night and day. During the period of descendency, chloroform in the same percentage was given in the dose of a dessertspoonful every two or three hours. Vomiting occasionally comes on, but is exceptional, and icterus was seen in only four cases. The medicine is, however, well tolerated by patients, and no disagreeable secondary pneumonia usually follows its use. The advantages which he claims for it are the decrease of the mortality, diminution in the severity of the diarrhœa, and in the fact that meteorism becomes less and less (*Journal de Médecine de Paris*, May 29, 1892).—*Therapeutic Gazette*, October 1892.

OCCASIONAL PERISCOPE OF DISEASES OF CHILDREN.

By JOHN THOMSON, M.D., F.R.C.P.E., Extra-Physician to the Royal Hospital for Sick Children; Lecturer on Diseases of Children, School of Medicine, Edinburgh.

IMPROVED METHODS OF MODIFYING MILK FOR INFANT FEEDING.—Dr T. M. Rotch, in describing the latest improvements in the treatment of cow's milk to make it as like as possible to human milk, points out the very interesting and important fact that milk which has been heated to 167° F. remains for twenty-four hours just as practically sterile as if it had been raised to the boiling-point. It does not, however, develop the "boiled milk taste" to any extent; and its coagulable albuminoids remain in the liquid condition.

Dr Henry Jackson corroborates Dr Rotch's statements. He has found that, at a temperature of 167° F., all, or practically all, living fully-developed bacteria are destroyed. The so-called "resisting forms" of bacteria are not affected at that temperature; but the temperature of boiling water has also no effect upon them.—*Boston Medical and Surgical Journal*, 21st July 1892.

EPITHELIAL PEARLS IN YOUNG INFANTS.—Mr A. A. Kanthack gives reasons for thinking that the well-known yellow beads, which are so often seen imbedded in the palate of new-born children, are not accumulations of epithelium shut in by the joining of the two halves of the palate in the process of development, as Epstein, Bland Sutton, and other recent writers have said, but are either retention-products or due to glandular disease. He has returned, therefore, to the view of the older pathologists.—*Journal of Anatomy and Physiology*, July 1892.

CONGENITAL WRYNECK.—In a very able paper Mr R. W. Murray discusses the causation of congenital wryneck. He is of opinion that this condition is not due to injuries inflicted at birth, nor to affection of the cervical sympathetic, or of the motor or sensory nerves of the face and neck, nor yet to a lesion of the central nervous system, as suggested by Mr Golding Bird. He gives strong reasons for believing that congenital wryneck is in every way analogous to congenital talipes equino-varus. They have the following points in common:—(1.) Both are congenital affections, and occur in perfectly healthy children. (2.) In both the deformity is maintained by a shortening of the muscles, fasciæ, etc., on the side of the flexion. (3.) In both the skin and subcutaneous tissues are stunted in growth on the side of the flexion. (4.) In both the appearance of the affected parts is that of stunted growth rather than that of atrophy. (5.) In both the reaction of the muscles to electricity is normal. (6.) In both the deformity becomes more pronounced as the child advances in years. (7.) In both there is a complete absence of paresis or paralysis, and the limitation of certain movements is entirely due to the resistence of shortened structures. Mr Murray believes that both deformities are due (as Mr R. W. Parker has shown congenital club-foot to be) to a "permanent, though sometimes exaggerated, condition of a physiological position" during intra-uterine life.—*Liverpool Medico-Chirurgical Journal*, July 1892.

Nervous Disorders following certain Acute Infectious Diseases of Children.—Dr P. Murray Braidwood divides these into those which follow the infectious malady *immediately*, and are due principally to the febrile poison, and those which appear *some time after*, and are a result of the weakening of the patient's constitution. He believes that careful treatment during the acute stage of infectious diseases lessens the risk of subsequent nervous disorders; and in the exanthemata he strongly recommends a daily hot bath (96°-100°) during the presence of the rash, and regular feeding every three or four hours during the night as well as during the day, with the view of keeping the strength at the highest possible level during the illness.—*Provincial Medical Journal*, Sept. 1892.

Part Fifth.

MEDICAL NEWS.

Royal Colleges of Physicians and Surgeons, Edinburgh, and Faculty of Physicians and Surgeons, Glasgow.—The Final Examinations for the Triple Qualification in Edinburgh took place in October and November with the following results:—Of 106 candidates, the following 59 passed and were admitted L.R.C.P. & S.E. and L.F.P. & S.G.,—Isaac Hugh Ross, Demerara; Norman Gladstone Douglas, Crewe; James Arthur Rex Stollmeyer, Trinidad; John William Stoker, Durham; George Herbert Kemp Ross, Jamaica; John Thomas Helm, Cape Colony; Oswald Horrocks, Manchester; Shaw Busteed Haynes, County Cork; James Archibald Leishman, India; Charles Edgar Whitcher, London; Charles Edward Oakeley, Monmouth; Richard William Fell, Durham; Frank Benjamin Lewis, Kent; Rosa Elizabeth Bale, Devon; Edith Grace Collett, Madras; Lilian Trewby, London; James Wilkie, Newburgh-on-Tay; Charles George Webster, Chandernagore; Henry Robins, Jamaica; Hubert Arthur Edgar Noble, Durham; Walter Sheffield Harvison, New South Wales; Charles Allan Kalenberg, Ceylon; Edmund Robinson Pollard, Burnley; Mary Charlotte Murdoch, Elgin; Alfred Clark, Dorset; Ernest Edwin Cooper, Great Yarmouth; George William Wickham, Winchester; John Oliver Bartholomeusz, Ceylon; Edith Lucy Nicholas, Middlesex; James Cook, Castlemaine; Robert Fair, County Galway; Lawrence Corcoran Murphy, Melbourne; Hirji Jehangir Dadysett, Bombay; Freany Khursedjee Cama, Bombay; Forbes Brown, Govan; Philip Francis Evans, Cork; Joshua Chadwick, Burnley; Alexander Aviet Fermie, Calcutta; Thomas George Gordon Symons, Falmouth; Frederick Ponsonby Hill, India; Lachlan Burges, Banffshire; William Beatt, Cavan; Thomas William Waddell, Demerara; David de Jersey White, Canada; Hugh Lathrop Murray, Victoria; Ralph Tate Clark, Cumberland; John Henry Wilson, Plymouth; Herbert Tatley, Liverpool; John Besnard Wilson, County Cork; John James Cooper Elmes, Limerick; Richard Arnold Mate, Salop; James Francis O'Meara, Limerick; John Thomas M'Arthur, County Tyrone; Angus John M'Donald, South Australia; Adam Gartley Merson, Banffshire; Thomas Muirhead Martin, Lanarkshire; William Ivan Senkler, Canada; Morris Jones, North Wales; and Richard Hadfield Manson, Darlington.

We have received a most ingenious and compact instrument, invented and patented by Dr Bengué, for the use of Ethyl Chloride as a local anæsthetic in minor and dental operations, and also in neuralgia. The Ethyl Chloride is contained in a glass cylinder, which when not in use is closed by a brass screwed stopper. On removing the stopper the warmth of the hand holding the cylinder sends up a fine spray, which, held at the distance of a quarter of an inch from the part acted on, first makes the skin pink, then red, and in about a minute at most the part becomes white, and local anæsthesia, which will last for a minute or even two minutes, is induced. The cylinder holds about 30 grammes of the fluid, which will suffice for ten or fifteen minor operations or extractions, and the cost of the whole complete is about 3s. 6d. We have tried it in minor operations, such as removal of external pile, opening a bursa, with complete success. The agent for the sale of the instrument is B. Kühn, 36 St Mary-at-Hill, Eastcheap, London.

PAPAIN (DR FINKLER & CO.) AND ITS PREPARATIONS.—We have received from B. Kühn, of London, specimens of—(1), Liquor Papain et Acid Glycerine; (2), Liquor Papain et Bismuth; (3), Liquor Papain et Iridin; (4), Liquor Papain et Cascar. Sagrada; (5), Papain in powder; (6), Papain in pills, each containing 2 grs.; (7), Tablets, each containing 2 grs.; and (8), Trochisci, each containing 2 grs. These are excellent preparations of a most valuable drug, and will be found useful in many forms of dyspepsia. Papain is a vegetable ferment of great power, and is active in all media.

BENGER'S FOOD FOR INFANTS, CHILDREN, AND INVALIDS.—We have received from Messrs Benger & Co., Manchester, a specimen of this food. Like all Benger's preparations it is excellent, and one which we can confidently recommend to the notice of our readers.

DR THEINHARDT'S FOOD FOR INFANTS.—We can confidently recommend this food as an excellent substitute for mother's milk. It is pleasant to the taste, easily assimilated, and will be found most nutritious. The "sample" was forwarded to us by Sörensen & Co., 37 Great Tower Street, London, E.C., and they say "One or two tins will be sent gratis to any children's hospital or specialist who will give the food a trial."

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. — The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about One Hundred and Eighty Dollars, will be made on July 14, 1893, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in Medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1893. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper, and within it the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1892 has been awarded to Dr R. H. L. Bibb, of Saltillo, Mexico, for his essay entitled:—"Observations on the Nature of Leprosy."

THERE is still a delightful want of unanimity in the naming of some diseases; thus, in one journal[1] the same malady is termed septic, malignant, ulcerative, acute vegetative, and infective endocarditis, by as many observers, each of whom has reasons for his nomenclature. The Suffolk district of the Massachusetts Medical Society discussed eight cases of this many named disease, all of which presented interesting features. Three of the cases occurred in males, all of them fatal—five in females, with one recovery. In three of the eight no murmurs could be detected during life, although post-mortem in two of them grave valvular lesions were present. The most remarkable thing, however, was the fact that three of the women suffered from purulent inflammation of the uterus or its appendages at the time, while two of the men had contemporary attacks of gonorrhœa. Of the other cases two followed acute pneumonia, one an attack of enteric fever. Micrococci were found in two cases in the endocardial vegetations, and of course the ubiquitous bacillus coli communis came in for its share of the blame. The particular organism is still a moot point—the micrococcus of septic endocarditis, the M. erysipelatis, the typhoid bacillus, the B. coli communis, or the gonococcus, are all eligible.

THE MEDICAL MISSIONARY.—A Hindoo, jealous of the encroachments of Western civilisation on his traditional beliefs, when asked "which of all the methods of that civilisation do you fear the most?" naturally enough evaded the question, remarking, "Why should I put weapons in the hands of an enemy?" At last he said, "We do not greatly fear the missionary schools, for we need not send our children; nor do we fear their books, for we need not read them; nor their preaching, for we need not listen to it. But we dread the doctors and the women. The doctors are winning our hearts and the women our homes; and when our hearts and homes are won, what is there left of us?" It is, in truth, with the advent of the medical man and the trained nurse that progress has been made in the reclamation of the backward Oriental, and the annals of missionary enterprise would lose half and more than half of their practical interest if these two factors of their work were omitted from the record.—*Medical Record.*

THE August, September, and October numbers of the *Medical Magazine* are before us. They are interesting, and keep up the tone of the first part. We shall, if possible, take occasion to refer to several of the articles next month.

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[1] *The Boston Medical and Surgical Journal*, September 1892.

SEMMELWEIS INTERNATIONAL MEMORIAL.

The Committee appointed at the meeting held on October 24th at the Royal College of Physicians desire to appeal to the profession in aid of the above object.

The maximum contribution to the fund having been fixed at one guinea, it is hoped that the appeal will meet with general response.

It is requested that subscriptions be forwarded to me as early as possible.

C. J. Cullingworth, M.D.,
Hon. Treas.

46 Brook Street, London, W.

MEDICAL WORK IN SAMOA.

Dr S. H. Davies, medical missionary of the London Missionary Society in Samoa, has sent us an interesting summary of his medical work during the past two years. As hardly anything is known as to the diseases prevalent in Samoa, it may be well to give an abstract of the paper, which is too long to publish *in extenso.*

Samoa is the native name of a group of tropical islands lying between 13° 30′ and 14° 20′ S. lat. and 168° and 173° W. long. The islands are of volcanic formation, and to the summit of the highest hills (2000 to 4000 feet) luxuriant tropical vegetation obtains. A nearly uniform average temperature of 80° Fahr. is noted, and there is an abundant supply of rain, especially from December to March, or in the hotter season, as well as a very heavy night dew, rendering the climate hot and humid.

The population, which is about 34,000, belongs to the brown Malayo-Polynesian type, the natives being as a rule tall and muscularly well developed. The villages are all close to the sea, and, situated as they are in low-lying places with swamps in the neighbourhood, and the custom of the people being to sleep on mats on stone floors raised only some 8 inches from the ground, accounts for many of their ailments. The men spend much time in fishing beneath a tropical sun by day and exposed to heavy dews at night, and the frequent civil wars have had an injurious effect upon the constitution of the natives, owing to exposure and want of good food.

Dr Davies has about one-seventh of the entire population under his charge. They are not as a rule prolific, and the death rate is slightly higher than the birth rate. Neither measles nor smallpox are known in Samoa; whooping-cough appeared in 1849, and gonorrhœa and syphilis have been imported, but are chiefly met with amongst the natives who have lived at or visited the harbour of Apia.

Apart from many thousands of patients with minor and ordinary ailments, Dr Davies gives an analysis of 1133 recorded cases treated by himself in two years.

Diseases of the respiratory system (including 31 cases of phthisis), 228.

Circulatory system (including 14 cases of anæmia), 20.

Digestive system (including 94 cases of dyspepsia and 9 of dysentery), 174.

Nervous system (including 5 cases of epilepsy and 6 of paralysis), 15.

Skin (including 21 cases of yaws), 46.

Urinary system, 8.

General (including 62 cases of chronic rheumatism), 86.

Surgical cases (including 25 abscesses, 48 cases of elephantiasis, 77 eye affections, and 123 ulcers), 411.

Diseases of children (apart from respiratory affections, and including 40 cases of intestinal worms), 71.

Diseases of women (including 11 cases of pelvic cellulitis, 19 of amenorrhœa, and 12 labours), 74.

Diseases of the respiratory system stand highest on the list, and during the epidemic of influenza at the end of last year respiratory affections were far more numerous than any other. Acute bronchitis is not nearly as common as chronic. Dr Davies believes that the influenza was introduced by a steamer from Sydney. It appeared first at Apia, and thence radiated throughout the island. The proportion of deaths occurring among Samoans who trusted to their very imperfect herbal remedies, was 10 deaths in one village of 600 to 700 inhabitants, and 4 and 5 in a population of 160 and 500 respectively in two other villages. In hundreds of cases occurring in natives and in foreigners (with one exception) treated by Dr Davies all recovered. The high temperature, the marked anorexia, the great prostration followed by pleurisy, pneumonia, and bronchitis, and also in many cases diarrhœa and vomiting, gave distinct features to this recent epidemic. To show that this influenza was infectious, Dr Davies says, " A Samoan came from Sydney when the epidemic was raging there. At the west end of Apia harbour, where he first stayed, influenza made its first appearance; it next showed itself 12 miles eastward, where he next went, and afterwards, on his coming west to this island, it followed closely in his track."

Dysentery is not very frequently met with in Samoa in adults, and is generally amenable to treatment. Three cases of facial paralysis, one of paralysis of the 3rd nerve, and another with some symptoms of glosso-labio-pharyngeal paralysis, are also noted.

Although the natives have a daily bath, skin affections, especially eczema, are very common, and herpes zoster is met with in epidemics. The ulcers are nearly all of the œdematous, callous, and indolent varieties. With regard to elephantiasis, very few cases have really been recorded. Very many cases were seen during the stage of elephantoid fever; in 25 out of the 48 cases recorded the scrotum was attacked; in 10 cases the inferior extremities, and in women the mammæ, are frequently the seat of elephantiasis commencing during the puerperium.

Eight cases of cataract were treated. There are five recorded cases of inguinal hernia, one of which was double. There were 6 cases of Potts' curvature, which is not of rare occurrence, and 4 cases of hip-joint disease in children were treated. Lupus is frequent. Ear affections also, induced by diving.

Strumous disease seems to be pretty frequent, and for a child not to suffer from yaws is regarded as abnormal.

Labours, as a rule, are easy, but they are not unfrequently tedious, owing to a rigid cervix, as well as troublesome from retained placentæ. "It is a mistake to imagine that native women pass the puerperium with immunity from disease. Not a few suffer from pelvic cellulitis. Samoans look somewhat seriously upon the puerperal period as a starting point for many troubles. . . . . The comparative frequency of elephantiasis in the mammæ renders the mothers very indifferent nurses." Many children die during infancy from unsuitable food, as well as from being dosed with herbal remedies.

Constant intermarriage is a probable cause of non-fertility. White men with native wives generally have a number of children.

It cannot be said that the introduction of European clothing has caused any decrease in the population.

Dr Davies concludes by saying how much good the medical mission work is doing, and states that it deserves a higher recognition from the Christian Churches.

More than seventy-two years ago the following letter was written by Robert Christison to Dr Duncan, junior, Argyll Square, Edinburgh. It is well worth reproduction and perusal. It is the property of Dr J. O. Affleck :—

Paris, 5*th Septr.* 1820.

Dear Sir,—According to your request, I send you, by the first opportunity that has occurred, a real Parisian *Pectoriloque;* but I suspect you will find that, after all its travels, it is in no respect different from one of British origin. I procured it from the Grand Cutler to the Faculty of Medicine, and of course you may depend on the accuracy of its construction: all of them are divided in the middle, for the convenience of the pocket, and not, as you supposed, from a rigid imitation of an engraving. Laennec, its inventor, is little talked of here. Many of the cutlers do not understand you when you ask for a pectoriloque or stetoscope, and I dare say his instrument has made fully more noise at Edinburgh than in his own city.

I have as yet seen very little of French Medicine, the first fortnight of a student in Paris being spent in very different pursuits. To the Physician's Wards of La Charité I have paid *one* visit, and its history is briefly this. While going through the wards I met a dead patient carried out under the physician's nose, and soon afterwards went to their anatomical theatre, where I saw a slovenly inspection of three others who died the day before. The prescriptions of the physician consisted of nothing but an interminable succession of ptisanes, decoctions, and bouillons, occasionally spiced with squills, and other articles still more innocent. But the most uncommon incident that occurred was, that I saw above 100 patients visited, and not a single ounce of human blood shed, either by lancet or leech. This certainly does not accord well with the familiar appearance of our Clinical and Fever Wards, where at least every other table is neatly set off every day with well-filled bleeding-cups.

At the Hotel-Dieu I have as yet attended only the visits of Dupuytren. From those visits very little is to be learned, as they are necessarily made with great expedition. But his operations must be invaluable to his pupils. Each operation, in fact, is a clinical lecture of the most perfect description, being conducted with wonderful dexterity, briefly, clearly, and thoroughly explained at all its stages, without the least appearance of a wish to show off, and without the least deviation from a pleasing humanity and insinuating kindness, which I have never seen equalled in any operation. Dupuytren has been often stigmatized by my countrymen as a harsh and brutal man. I can only say that I have never observed it; although I must confess that I have rarely seen a human being curst with a more malignant expression of countenance.

It is perhaps worth while mentioning, for the sake of any of your friends or pupils who may intend coming here, that now, in consequence of the late uproars among the students, tickets of admission to the hospitals must be taken out—for which end it is necessary for a foreigner to show his Physician's or Surgeon's Diploma, or a discharged indenture.

If you can remember any other commission in which I may be of use to you, I shall be happy to have my services at your command. There are frequent opportunities of conveyance betwixt this and London from the multitude of Englishmen passing to and fro, so that I can have no difficulty in sending anything safely to Longman & Co., your booksellers.—Believe me to be, yours ever most truly,
R. CHRISTISON.

Tuesday Morning, HOTEL DE SAXE,
RUE DU COLOMBIER, No. 12.

OBITUARY.

THE LATE ALEXANDER MACDONALD SANDERSON, F.R.C.S. ED.

THOSE of us in Edinburgh who remember the worthy and respected father of A. M. Sanderson find it hard to believe that the man who died on Sunday morning, the 9th of October, was an old man, the fifth in seniority of the Fellows of the Royal College of Surgeons. Admitted a Licentiate in 1846, he took his Fellowship in 1852, and during these forty years few of the country Fellows were better known or better liked than the genial, cheerful man who has just departed. For forty years Alexander Sanderson has been a well-known and highly-respected practitioner in Musselburgh,—at first in partnership with his father, he was known for many a year as the young doctor, and even to the last his activity, cheerfulness, love of sport, and devotion to all manly exercises, kept him in manners and appearance a young man. He managed, notwithstanding the cares of a large private practice, to take a considerable share in public affairs. He was an active Volunteer officer, having been for many years Surgeon-Major to the Midlothian Coast Artillery Volunteers. An enthusiastic golfer and sportsman, he was beloved as well as respected by all who knew him. He is survived by his widow and a son and daughter. The latter is married to Dr Andrew Thomson of Musselburgh, who has been for many years a partner, and now succeeds Dr Sanderson in his practice.

945-4

PUBLICATIONS RECEIVED.

HENRY ASHBY, M.D., etc., and G. A. WRIGHT, M.B., etc.,—The Diseases of Children, Medical and Surgical. Longmans, Green, & Co., London, 1892.

ROBERT BOYLE,—A Sanitary Crusade through the East and Australasia. R. Boyle & Son, Lond., 1892.

LUDWIG BRUCK,—Australasian Medical Directory. Baillière, Tindall, & Cox, Lond., 1892.

Dr C. A. EWALD,—The Diseases of the Stomach. Young J. Pentland, Edin., 1892.

CH. FÉRÉ,—La Pathologie des Émotions. Baillière et Cie, Paris, 1892.

Journal of Pathology and Bacteriology, Nos. 1 and 2. Edited by G. S. WOODHEAD, M.D. Young J. Pentland, Edin.

LOUIS C. PARKES, M.D.,—Hygiene and Public Health. H. K. Lewis, London, 1892.

Sir WM. ROBERTS, M.D.,—On the Chemistry and Therapeutics of Uric Acid, Gravel, and Gout. Smith, Elder, & Co., London, 1892.

ALEXANDER J. C. SKENE, M.D.,—Treatise on the Diseases of Women. H. K. Lewis, London, 1892.

HENRY R. SWANZY, A.M., M.B.,—A Handbook of the Diseases of the Eye and their Treatment. H. K. Lewis, London, 1892.

The Pharmacy and Poison Laws of the United Kingdom. Office of "Chemist and Druggist," Lond., 1892.

Transactions of the Obstetrical Society of London, Vol. 34, Part 2. Lond., 1892.

D. HACK TUKE, M.D., LL.D.,—Reform in the Treatment of the Insane. J. & A. Churchill, London, 1892.

J. C. WEBSTER, M.D., etc.,—Researches in Female Pelvic Anatomy. Young J. Pentland, Edin.. 1982.

J. C. WEBSTER, M.D., etc.,—Tubo-Peritoncal Ectopic Gestation. Young J. Pentland, Edin., 1892.

J. RYLAND WHITAKER,—Anatomy of the Brain and Spinal Cord. E. & S. Livingstone, Edin., 1892.

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